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# Food Cost Review, 1996

Howard Elitzak



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**Food Cost Review, 1996.** By Howard Elitzak, Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 761.

## **Abstract**

Food prices, as measured by the Consumer Price Index (CPI), increased 3.3 percent in 1996. This increase was greater than the overall increase in the CPI (which rose 2.9 percent) for the second consecutive year. Higher charges for processing and distributing food, as measured by the farm-to-retail price spread, were primarily responsible for the 1996 increase. The prices farmers received for commodities, as measured by the farm value of USDA's market basket of foods, rose 8.1 percent. The farm value share of the food dollar spent in grocery stores in 1996 was 25 percent, an increase of 1 percent from 1995. The farm-to-retail price spread of USDA's market basket of foods rose 3.2 percent, partly reflecting higher prices of inputs, such as labor.

**Keywords:** Retail food prices, farm-to-retail price spread, farm value share, food marketing costs, food spending, profits, productivity.

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## Summary

Consumers paid 3.3-percent higher prices for food in 1996, as measured by the Consumer Price Index (CPI), compared with 1995's 2.9-percent increase. The CPI for all goods and services rose 2.9 percent in 1996.

Grocery store food prices rose the most, advancing 3.7 percent, up from 3.2 percent in 1995. The food groups whose retail prices increased the most in 1996 were eggs, pork, dairy, poultry, and fresh fruits. Higher grocery store food prices resulted from higher marketing costs, high feed grain costs, strong export demand, and adverse weather conditions. These price increases were mitigated by lower beef prices stemming from large supplies, lower fresh vegetable prices due to a record-large potato crop, and lower prices for nonalcoholic beverages.

Restaurant meal prices went up 2.5 percent, slightly more than the 2.3-percent increase in 1995, consistent with the pattern of relatively small restaurant price increases during the 1990's. These small price hikes were largely due to increased competition among restaurants, which held down menu price increases. Moreover, fast-food sales increased as chains offered special-value meals.

The farm value of USDA's market basket of foods—based on prices farmers received for commodities—jumped 8.1 percent in 1996, largely reflecting higher farm prices of eggs, fresh fruits, poultry, wheat, and milk. (The market basket contains the average quantities of food that mainly originate on U.S. farms and are purchased for consumption at home in a base period, and excludes seafood and nonalcoholic beverages.) The 1996 farm value of food averaged 25 percent of the retail cost of the market basket, about 1 percent more than in 1995. However, the share has generally declined over time as abundant food supplies held down farm prices, and rising processing/distributing charges boosted retail prices. The farm value was 37 percent in 1980. Some farm value highlights, by commodity:

- Red meat accounts for about 36 percent of the farm value of USDA's market basket. Farm value of red meat rose 7.0 percent in 1996, mainly reflecting pork shortages due to depleted stocks and higher feed grain prices. However, large beef supplies mitigated further rises in the red meat farm value.
- Poultry producers increased broiler and turkey output in 1996 by a faster growth rate than in 1995. Yet, with poultry production up about 5.3 percent for the year, farm value of poultry surged 11.0 percent. Despite record broiler production in 1996, the farm value rose in the face of strong export demand and increased feed costs. Moreover, consumption of rotisserie chicken at fast-food outlets further augmented the demand for poultry products.

- Higher producer prices for milk increased the farm value of dairy products by an average of 15.5 percent. Milk production declined as the number of dairy cows decreased due to higher 1995 slaughter rates. Slaughter rates rose due to higher feed-grain prices and adverse forage conditions.
- The farm value of cereals and baked goods surged 14 percent in 1996, mainly reflecting higher wheat prices. Farmers received 5.9 cents in 1996 for the wheat in a 1-pound loaf of white bread selling for 88 cents in supermarkets, 8.5 cents more than in 1995. The 1996 farm value of other bread ingredients, mainly shortening and sweeteners, was 0.9 percent, slightly higher than in 1996.
- Farm value of fruit averaged 11 percent higher in 1996, due mainly to weather damage in California and the Northwest that reduced supplies. The farm value of fresh vegetables averaged 13 percent lower in 1996, primarily due to a record-large potato crop, which dropped farm prices for fresh potatoes by 50 percent. Potatoes are the single largest component of the fresh vegetable category.

The farm-to-retail price spread—the difference between the farm value and retail price of food—rose 3.2 percent in 1996, partly reflecting higher prices of marketing inputs such as labor and energy. The increase in the 1996 farm-to-retail price spread was only slightly smaller than in 1995. The farm-to-retail price spread increased for all food groups. Higher costs for labor, packaging, energy, transportation, and other marketing inputs push the spread wider nearly every year. The cost of these inputs after the products leave the farm has a greater effect on retail prices than do increases in prices received by farmers.

Consumers spent \$547 billion for food produced on U.S. farms in 1996, about 3.2 percent more than in 1995. This amount includes purchases of farm foods in grocery stores (which account for about 60 percent of total consumer food expenditures) and at away-from-home eating places. Seventy-seven percent of this total, or \$424 billion, went to pay the marketing bill. The remaining 23 percent of 1996 food spending went to farmers, who received about \$123 billion for food commodities. This figure is lower than the 25-percent farm value share for the market basket of foods because it includes the much lower farm value share of away-from-home food spending.

# Food Cost Review, 1996

Howard Elitzak

## Introduction

Consumers, farmers, and legislators want to know what causes food prices to change. They are also interested in the farm-to-retail price spread, which measures the difference between what farmers get for the food they sell and what consumers pay for food that was processed and marketed. To answer these concerns, Congress has directed the U.S. Department of Agriculture (USDA) to measure price spreads for food originating on farms.

This report presents USDA's findings for 1996, including answers to the following questions:

- How much did food prices rise in 1996? Why?
- How much of the retail food price does the farm value represent?
- How did farm-to-retail price spreads change in 1996, both for a market basket of food and for such food groups as meat and dairy products?
- How have recent developments affected food industry costs, profit margins, and productivity?
- Finally, how much did Americans spend for farm-produced food, and how were these dollars divided among costs of producing and marketing food?

## The 1996 Economy: An Overview

The 1996 economy featured strong growth in gross domestic product, employment, and personal income, which led to increased consumer spending on durable goods and services. Real gross domestic product rose 2.8 percent, a faster pace than 1995's 2 percent increase. Aggregate employment grew 1.2 percent in 1996, while unemployment stood at the lowest level since 1990. Higher wages and salaries produced a 1.4-percent increase in real per capita income, contin-

uing the pattern of sustained growth during the 1990's. However, the relatively strong economy did not translate into stronger consumer food expenditures. Sales of food purchased in grocery stores and restaurants dropped slightly in 1996 when adjusted for inflation.

## Food Price Inflation Was Higher in 1996

Retail food prices in 1996, as measured by the Consumer Price Index (CPI), averaged 3.3 percent above those in 1995 (table 1). This increase was only slightly greater than 1995's rise of 2.9 percent. Food price inflation in 1996 was higher than the overall increase in the CPI (2.9 percent), as was the case in 1995. The general rate of inflation was higher than food price inflation from 1991 to 1994.

Food prices in 1996 rose more at supermarkets and other grocery stores than at eating places. Food prices in grocery stores rose 3.7 percent, and prices for restaurant meals advanced by only 2.5 percent. Grocery store prices of foods advanced at a faster pace in 1996 than in 1995. The food groups whose retail prices increased the most in 1996 were eggs, pork, dairy, poultry, and fresh fruits (table 2). Higher grocery store food prices resulted from higher marketing costs, high feed grain costs, strong export demand, and adverse weather conditions. These price increases were mitigated by lower beef prices stemming from large supplies, lower fresh vegetable prices due to a record-large potato crop, and lower prices for nonalcoholic beverages (table 3). Prices of restaurant meals increased slightly more in 1996 than they had the year before, consistent with the pattern of relatively small restaurant price increases during the 1990's. These small price hikes were largely due to increased competition among restaurants, which held down menu price increases. Moreover, fast-food sales increased as chains offered special value meals.

**Table 1—Consumer Price Indexes for food and percentage changes from previous years**

Year	Food		Food at home		Food away from home	
	Index	Change	Index	Change	Index	Change
	1982-84=100	Percent	1982-84=100	Percent	1982-84=100	Percent
1973	48.2	14.5	49.7	16.4	44.2	7.8
1974	55.1	14.3	57.1	14.9	49.8	12.7
1975	59.8	8.5	61.8	8.2	54.5	9.4
1976	61.6	3.0	63.1	2.1	58.2	6.8
1977	65.5	6.3	66.8	5.9	62.6	7.6
1978	72.0	9.9	73.8	10.5	68.3	9.1
1979	79.9	11.0	81.8	10.8	75.9	11.1
1980	86.8	8.6	88.4	8.1	83.4	9.9
1981	93.6	7.8	94.8	7.2	90.9	9.0
1982	97.4	4.1	98.1	3.5	95.8	5.4
1983	99.4	2.1	99.1	1.0	100.0	4.4
1984	103.2	3.8	102.8	3.7	104.2	4.2
1985	105.6	2.3	104.3	1.5	108.3	3.9
1986	109.0	3.2	107.3	2.9	112.5	3.9
1987	113.5	4.1	111.9	4.3	117.0	4.0
1988	118.2	4.1	116.6	4.2	121.8	4.1
1989	125.1	5.8	124.2	6.5	127.4	4.6
1990	132.4	5.8	132.3	6.5	133.4	4.7
1991	136.3	2.9	135.8	2.6	137.9	3.4
1992	137.9	1.2	136.8	.7	140.7	2.0
1993	140.9	2.2	140.1	2.4	143.2	1.8
1994	144.3	2.4	144.1	2.9	145.7	1.7
1995	148.4	2.9	148.8	3.2	149.0	2.3
1996	153.3	3.3	154.3	3.7	152.7	2.5

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Food prices in 1996 rose more than prices for most other consumer products and services (fig. 1). Among major items in the CPI, housing prices, the largest component, went up 2.9 percent, and transportation went up 2.8 percent, but apparel and upkeep prices dropped 0.2 percent. The largest increase was again in medical costs, which climbed 3.5 percent.

The marketing spread, the difference between the farm value and retail price of food, consistently contributes more to food price increases than do volatile farm prices. Higher costs for labor, packaging, and other marketing inputs push the spread wider nearly every year. The 1996 rise in the farm-to-retail price spread was 3.2 percent, slightly smaller than in the previous year, but equal to the annual average increase of the last 5 years. During this period, the

cost of marketing farm products has tended to rise faster than aggregate farm commodity prices.

## Market Basket Prices

USDA uses its market basket concept to analyze changes in grocery store food prices by separating the two major components of food prices—prices received by farmers for food commodities and charges for marketing services (see box). The market basket contains the average quantities of food that originate mainly on U.S. farms and are purchased for consumption at home in a base period, and excludes seafood and nonalcoholic beverages. Changes in retail prices of the market basket are components of the CPI for food consumed at home.

USDA divides the retail cost for a market basket of food into the farm value and the farm-to-retail price



**Table 2—Consumer Price Index changes for food eaten at home, by food group**

Food group	1991	1992	1993	1994	1995	1996
<i>Percentage change from year earlier</i>						
Cereal and cereal products	4.5	3.9	3.0	4.4	1.4	1.4
Bakery products	4.0	3.9	3.5	4.0	3.4	5.2
Beef and veal	2.8	-.1	3.6	-.8	-.8	-.3
Pork	3.3	-4.7	3.1	1.7	.7	9.9
Other meat	3.7	.2	1.6	2.4	1.5	3.6
Poultry	-.8	-.1	4.2	3.4	1.4	6.2
Eggs	-2.3	-10.6	8.1	-2.4	5.4	18.0
Fish and seafood	1.1	2.3	3.2	4.5	4.8	0.9
Dairy products	-1.1	2.7	.7	1.8	0.8	7.0
Fresh fruit	13.5	-5.0	2.5	6.6	8.8	7.1
Fresh vegetables	2.2	2.2	6.6	2.3	12.1	-2.0
Processed fruit	-3.7	4.5	-3.9	.6	3.1	5.8
Processed vegetables	.8	.2	1.6	4.4	1.3	4.0
Fats and oils	4.3	-1.4	.2	2.7	2.8	2.4
Sugar and sweets	3.7	2.9	.2	1.3	1.7	4.5
Nonalcoholic beverages	.5	.2	.3	7.5	6.9	-2.4
Other prepared food	4.5	2.2	2.6	2.6	2.4	3.4

Source: U.S. Department of Labor, Bureau of Labor Statistics.

spread (table 4). The farm value represents prices farmers receive for raw commodities equivalent to foods in the market basket. The farm-to-retail price spread represents the difference between the retail price and the farm value. The price spread includes the charges for assembling foods from farms, and for processing, distributing, and retailing foods. The

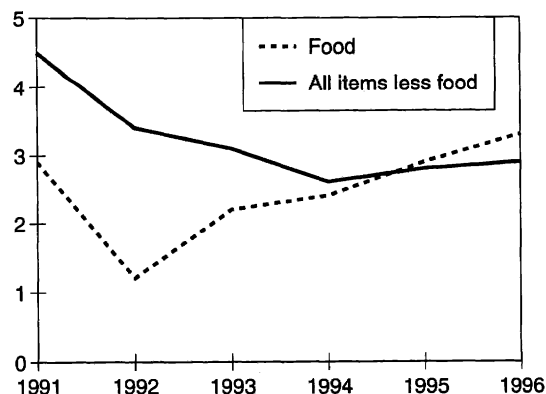
1996 farm value rose faster in percentage terms than the rise in the farm-to-retail spread, for the first time since 1984. However, marketing costs account for a much larger portion of retail food prices—75 percent—than does the farm value. Therefore, marketing costs contributed 55 percent of the 1996 increase in retail prices, with the farm value accounting for the remaining 45 percent.

Figure 1

### Consumer price indexes

*The nonfood increase was smaller than the food price increase for the second consecutive year in 1996.*

Annual percentage change



### Farm Value

Farm value is a measure of the return, or payment, farmers received for the farm-product equivalent of retail food sold to consumers. The market basket farm value serves as an index of prices farmers receive for products later used for food. Farm values for individual food items are expressed in dollar amounts for comparison with the item's retail price. Farm value is calculated by multiplying farm price by the quantity of farm-product equivalent of food sold at retail. An allowance is made in farm values if byproducts are obtained in processing. The farm value usually represents a larger quantity than the retail unit, because the foodstuffs that farmers produce lose weight through storage, processing, and distribution.

**Table 3—Average retail food prices, selected items**

Item	Unit	1992	1993	1994	1995	1996	Item	Unit	1992	1993	1994	1995	1996
<i>Dollars</i>							<i>Dollars</i>						
Flour, white	Pound	0.24	0.23	0.23	0.25	.29	Apples, red delicious	Pound	0.89	0.83	0.80	0.84	.93
Rice, white, uncooked	Pound	.53	.51	.55	.53	.55	Bananas	Pound	.46	.44	.46	.49	.49
Spaghetti and macaroni	Pound	.86	.83	.87	.86	.87	Oranges, navel	Pound	.57	.54	.54	.60	.62
Bread, white	Pound	.75	.75	.76	.79	.88	Oranges, Valencia	Pound	.56	.65	.59	.64	.70
Bread, French	Pound	--	--	1.51	1.53	1.50	Cherries	Pound	--	--	--	--	--
Cookies, chocolate chip	Pound	2.78	2.46	2.54	2.47	2.58	Grapefruit	Pound	.61	.53	.51	.55	.57
Ground beef	Pound	1.53	1.57	1.48	1.37	1.37	Grapes, Thompson						
Chuck, ground	Pound	1.91	1.94	1.86	1.84	1.80	seedless	Pound	1.29	1.47	1.51	1.55	1.69
Chuck roast, bone-in	Pound	2.10	2.10	2.13	2.07	2.06	Lemons	Pound	1.01	1.08	1.11	1.14	1.11
Round roast, boneless	Pound	3.06	3.06	2.98	2.88	2.80	Peaches	Pound	.89	.95	.95	1.09	1.18
Rib roast	Pound	4.64	4.84	4.79	4.96	5.38	Pears, Anjou	Pound	.83	.86	.80	.77	.92
Round steak, boneless	Pound	3.38	3.40	3.25	3.21	3.12	Strawberries	12 oz.	1.14	1.12	1.13	1.32	1.17
Sirloin steak, bone-in	Pound	3.81	3.91	3.77	--	--	Potatoes, white	Pound	.30	.35	.37	.38	.38
T-bone steak	Pound	5.37	5.66	5.83	5.97	5.78	Lettuce, iceberg	Pound	.58	.66	.61	.80	.65
Bacon, sliced	Pound	1.92	1.93	1.99	1.99	2.47	Tomatoes, fieldgrown	Pound	1.09	1.08	1.09	1.16	1.21
Chops, center-cut	Pound	3.15	3.24	3.22	3.21	3.41	Beans, green	Pound	--	--	--	--	--
Ham, rump	Pound	1.61	1.58	1.64	1.56	1.87	Cabbage	Pound	.36	.41	.37	.43	.40
Ham, shoulder picnic	Pound	1.32	1.16	1.13	1.11	1.23	Carrots	Pound	.47	.43	.44	.53	.51
Sausage	Pound	2.20	2.11	1.98	1.91	2.01	Celery	Pound	.51	.60	.50	.68	.51
Ham, canned	Pound	3.17	--	--	--	--	Cucumbers	Pound	.67	.62	.62	.69	.70
Frankfurters	Pound	2.24	2.11	2.11	2.03	2.08	Onions, yellow	Pound	.42	.48	.46	.46	.44
Bologna	Pound	2.47	2.38	2.29	2.31	2.33	Peppers, sweet	Pound	1.06	1.15	1.13	1.37	1.28
Chicken, fresh, whole	Pound	.87	.89	.90	.92	.97	Orange juice,						
Chicken breast	Pound	2.04	2.08	2.06	1.98	2.03	frozen concentrated	16 oz.	1.89	1.63	1.61	1.61	1.70
Chicken legs	Pound	1.12	1.10	1.13	1.16	1.24	Potatoes, frozen,						
Turkey, frozen	Pound	.97	1.00	1.00	1.02	1.04	french-fried	Pound	.87	.86	.86	.86	.90
Tuna, canned	Pound	2.02	1.97	2.04	1.99	1.97	Tomatoes, canned	Pound	--	--	--	--	--
Eggs, Grade A, large	Dozen	.86	.91	.86	.93	1.11	Margarine, tub	Pound	1.30	1.18	1.15	1.04	1.00
Milk, fresh, whole	½ gal.	1.39	1.39	1.44	1.43	1.56	Margarine, stick	Pound	.85	.80	.82	.83	.81
Milk, low-fat	½ gal.	1.36	--	--	--	--	Shortening	Pound	.83	.80	.85	.89	.87
Butter	Pound	1.83	1.66	1.60	1.61	2.05	Peanut butter	Pound	1.94	1.79	1.85	1.80	1.79
Ice cream	½ gal.	2.58	2.53	2.63	2.65	2.86	Potato chips	Pound	2.90	2.88	2.97	3.01	3.06
Yogurt	½ pt.	.61	.59	.60	.62	.65	Sugar, white	Pound	.42	.41	.40	.40	.42
Cheese, cheddar	Pound	3.57	3.34	3.35	3.39	3.25	Coffee, roasted	Pound	2.58	2.47	3.40	4.02	3.41
Cheese, processed	Pound	3.32	3.09	3.07	3.07	3.34	Cola, nondiet, cans	16 oz.	.46	--	--	--	--

-- = Not available.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

**Table 4—Indexes of retail price, farm value, and the farm-to-retail price spread, and farm value as a share of the retail price<sup>1</sup>**

Year	Retail price	Farm value	Farm-to-retail price spread	Farm value share of retail price
	1982-84 = 100			Percent
1951	33	46	26	49
1952	34	44	28	47
1953	32	41	28	45
1954	32	39	28	43
1955	31	36	29	41
1956	32	36	29	40
1957	33	37	30	40
1958	35	40	32	41
1959	34	37	32	39
1960	34	38	32	39
1961	34	37	33	39
1962	34	38	33	39
1963	34	36	33	38
1964	34	36	34	36
1965	35	40	33	38
1966	37	43	34	39
1967	37	40	35	39
1968	38	42	36	38
1969	40	46	37	39
1970	42	46	40	37
1971	43	46	41	37
1972	45	50	42	38
1973	52	68	45	44
1974	60	73	53	42
1975	64	76	58	40
1976	65	72	61	38
1977	66	72	63	37
1978	74	83	68	38
1979	82	92	77	38
1980	88	97	84	37
1981	95	100	92	36
1982	98	99	98	35
1983	99	97	100	34
1984	103	104	103	35
1985	104	96	108	32
1986	106	95	112	31
1987	112	97	120	30
1988	116	100	125	30
1989	125	107	134	30
1990	134	113	145	30
1991	137	106	154	27
1992	138	103	157	26
1993	142	105	162	26
1994	145	101	169	24
1995	149	103	175	24
1996 <sup>2</sup>	156	111	180	25

<sup>1</sup> For a market basket of food bought in foodstores in a base period, currently 1982-84. The retail price index is derived from data from the U.S. Department of Labor, Bureau of Labor Statistics. Farm value is based on prices farmers received for commodities. The spread between the retail price and farm value represents charges for processing and marketing.

<sup>2</sup> Preliminary.

Source: Calculated by ERS based on data from government and private sources.

The farm-product equivalent varies among foods. Only a slight amount of raw milk is lost, for example, as it is handled and processed for sale in cartons to consumers. Therefore, the farm value per retail half-gallon of milk is a little more than the price that milk producers receive per half-gallon. In contrast, nearly 2.4 pounds of live animal yield 1 pound of Choice beef on the meat counter. The payment the cattle producer receives for that larger quantity of live animal is the gross farm value in the price of 1 pound of retail beef.

The average farm value (what farmers receive) of USDA's market basket of foods was 8.1 percent higher in 1996, the third increase of the last 4 years (table 4) and the largest jump since 1989's 6.5-percent rise, which was induced by the previous year's drought. The 1996 farm value of foods was about 17 percent higher than the value a decade earlier. Since that time, the farm value has either declined or increased only slightly, except for 1989 and 1990 (fig. 2).

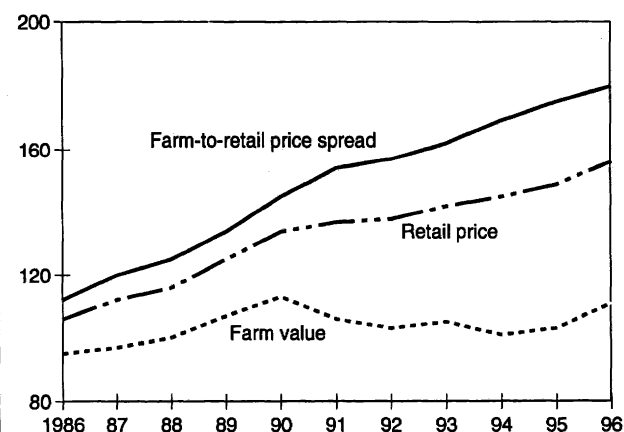
Red meat accounts for about 36 percent of the farm value of USDA's market basket. Farm value of red meat rose 7 percent in 1996 (table 6), mainly reflecting pork shortages due to depleted stocks and higher feed grain prices. However, large beef supplies miti-

Figure 2

### Food price components

*Farm value of food products rose for the third time in the last four years, and the most since 1989. The farm value is 17 percent higher than a decade earlier.*

1982-84 = 100



## The Market Basket and Marketing Bill Measure Food Marketing Costs in Different Ways

USDA uses its **market basket** concept to track food price changes in grocery stores and to determine the underlying causes of changes in grocery store prices. The market basket contains the average annual quantities of foods purchased per household in a base period (currently 1982-84). Since the basket relies on a fixed set of quantities, changes in the value of the market basket are strictly the result of changes in price. The market basket consists of three components—the retail price, the farm value, and the farm-to-retail price spread.

The **retail price** component of the market basket is a subset of the Consumer Price Index for Food at Home, adjusted to exclude imported foods, nonalcoholic beverages, and seafood. Moreover, food purchased for away-from-home consumption is excluded from this estimate. The retail price index for the market basket has two parts:

The **farm value** represents the prices received by farmers for the quantities of raw farm commodities that must be purchased from farmers in order to sell a unit of food product at retail.

The **farm-to-retail price spread** is the difference between retail price and farm value, and represents the costs of processing, wholesaling, and retailing foods. The price spread concept should be distinguished from the concept of margins as defined and used in the food trade. The farm-to-retail price spread represents the difference between average prices at two levels of the food marketing system at a given point in time. A margin is the difference between sales of a good or goods and the cost of goods sold. Margins allow for pricing inputs at a different point in time than the one in which the product is sold.

The **marketing bill** differs from the farm-to-retail price spread in several important ways. The bill is the difference between consumer expenditures for foods produced on U.S. farms and an associated farm value. However, product quantities are allowed to vary from year to year, in contrast to the fixed quantities used to develop market basket estimates. Therefore, changes in the marketing bill may result from changes in price, product mix, product quantity, and the quantity of marketing services. Thus, the bill measures changes in marketing costs, whereas the market basket measures changes in prices. Moreover, the bill includes both the at-home and away-from-home markets.

gated further rises in the red meat farm value. For 1 pound of Choice grade beef selling for an average retail price of \$2.80, cattle producers received \$1.35 for the equivalent quantity of live animal (2.4 pounds) in 1996, down slightly from 1995. This decline was partially offset by higher pork prices. For 1 pound of pork selling at retail for \$2.21 in 1996, hog producers received 84.6 cents for the equivalent quantity of live animal (1.7 pounds), about 18 cents more than in 1995.

Poultry producers increased broiler and turkey output in 1996 by a faster growth rate than in 1995. Yet, with poultry production up about 5.3 percent for the year, farm value of poultry surged 11 percent. Despite record broiler production in 1996, the farm value rose in the face of strong export demand and increased feed costs. Moreover, consumption of rotisserie chicken at fast-food outlets further augmented the demand for poultry products. Broiler chicken producers received 55 cents of the average

retail price of 97 cents per pound of whole frying chicken in 1996, a higher percentage than in 1995.

The farm value of eggs surged 26 percent in 1996, reflecting strong domestic demand and higher feed costs for egg-laying hens. The 1996 farm value averaged 69 cents for a dozen eggs, with an average price of \$1.11 at grocery stores.

Higher producer prices for milk increased the farm value of dairy products by an average of 16.3 percent. Milk production declined as the number of dairy cows decreased due to higher 1995 slaughter rates. Slaughter rates rose due to higher feedgrain prices and adverse forage conditions. A half-gallon of fluid milk retailing for \$1.56 returned the producer about 67 cents in 1996, 9 cents more than in 1995. (Half a gallon of fresh milk has a net weight of approximately 4.3 pounds. An allowance of 2 percent is made for milk lost in assembling, processing, and packaging. Thus, the farm-product equivalent is 4.39 pounds.)

**Table 5—Retail price, farm value, and farm value share for selected foods**

Food	Retail price			Farm value			Farm value share of retail price <sup>1</sup>		
	1996	1995	1994	1996	1995	1994	1996	1995	1994
	<i>Dollars</i>						<i>Percent</i>		
Animal products:									
Eggs, Grade A large, 1 doz.	1.11	0.93	0.86	0.69	0.55	0.50	62	59	58
Beef, choice, 1 lb.	2.80	2.84	2.83	1.35	1.38	1.46	48	49	52
Chicken, broiler, 1 lb.	.97	.92	.90	.55	.49	.49	57	53	54
Milk, ½ gal.	1.56	1.43	1.44	.67	.58	.61	43	41	42
Pork, 1 lb.	2.21	1.95	1.98	.85	.67	.63	38	34	32
Cheese, natural cheddar, 1 lb.	3.25	3.39	3.35	1.30	1.16	1.17	40	34	35
Fruit and vegetables:									
Fresh--									
Lemons, 1 lb.	1.11	1.14	1.11	.27	.30	.27	24	26	24
Apples, red delicious, 1 lb.	.93	.84	.80	.21	.21	.17	23	25	21
Potatoes, 10 lbs.	3.81	3.79	3.74	.80	.80	.77	21	21	21
Oranges, California, 1 lb.	.66	.62	.56	.11	.12	.11	17	19	20
Grapefruit, 1 lb.	.57	.55	.51	.10	.10	.10	18	18	20
Lettuce, 1 lb.	.65	.80	.61	.12	.18	.12	18	22	20
Frozen--									
Orange juice conc., 12 fl. oz.	1.28	1.21	1.22	.47	.48	.46	37	40	38
Broccoli, cut, 1 lb.	1.19	1.16	1.15	.26	.26	.25	22	22	22
Corn, 1 lb.	1.10	1.12	1.06	.14	.14	.13	13	13	12
Green beans, cut, 1 lb.	1.01	1.00	1.03	.11	.11	.11	11	11	11
Canned and bottled--									
Peas, 303 can (17 oz.)	.47	.45	.51	.12	.11	.11	26	24	22
Corn, 303 can (17 oz.)	.42	.40	.48	.11	.11	.10	26	28	21
Applesauce, 25-oz. jar	1.07	1.05	1.01	.22	.17	.15	21	16	15
Pears, 2-1/2 can	1.32	1.22	1.21	.22	.17	.20	17	14	17
Peaches, cling, 2-1/2 can	1.23	1.13	1.13	.18	.18	.18	15	16	16
Apple juice, 64-oz. bottle	1.65	1.44	1.36	.46	.45	.28	28	31	21
Green beans, cut, 303 can	.42	.39	.44	.06	.06	.06	14	15	14
Tomatoes, whole, 303 can	.56	.53	.50	.04	.05	.05	7	9	10
Dried--									
Beans, 1 lb.	.74	.71	.71	.23	.25	.25	31	35	35
Raisins, 15-oz. box	1.68	1.64	1.60	.50	.42	.47	30	26	29
Crop products:									
Sugar, 1 lb.	.41	.38	.38	.14	.13	.13	34	34	34
Flour, wheat, 5 lbs.	1.44	1.23	1.16	.48	.43	.36	33	35	31
Shortening, 3 lbs.	2.61	2.66	2.55	.73	.80	.84	28	30	33
Margarine, 1 lb.	.81	.83	.82	.21	.23	.24	26	28	29
Rice, long grain, 1 lb.	.55	.53	.55	.13	.11	.12	24	21	22
Prepared foods:									
Peanut butter, 1 lb.	1.79	1.80	1.85	.48	.48	.48	27	27	26
Pork and beans, 303 can (16 oz.)	.40	.40	.39	.07	.08	.07	18	20	18
Potato chips, regular, 1-lb. bag	1.95	1.95	1.93	.33	.35	.30	17	18	16
Chicken dinner, fried, frozen, 11 oz.	1.17	1.17	1.15	.18	.17	.17	15	15	15
Potatoes, french fried, frozen, 1 lb.	.90	.86	.86	.12	.12	.10	13	14	12
Bread, 1 lb.	.88	.79	.76	.07	.06	.05	8	8	7
Corn flakes, 18-oz. box	1.89	1.75	1.76	.13	.10	.09	7	6	5
Oatmeal, regular, 42-oz. box	2.57	2.56	2.56	.25	.18	.16	10	7	6
Corn syrup, 16-oz. bottle	1.67	1.63	1.59	.08	.06	.06	5	4	4

<sup>1</sup> Computed from unrounded farm values.

Source: Calculated by ERS based on data from government and private sources.

**Table 6—Price changes for market basket of foods<sup>1</sup>**

Item	1991	1992	1993	1994	1995	1996 <sup>2</sup>
	<i>Annual percentage change</i>					
Market basket:						
Retail price	2.9	.7	2.5	2.5	2.8	4.4
Farm value	-6.2	-2.7	1.6	-3.3	1.4	8.1
Farm-to-retail spread	6.7	2.1	2.9	4.4	3.3	3.2
Meat products:						
Retail price	3.1	-1.4	3.0	.6	.1	3.4
Farm value	-5.8	-5.0	2.6	-10.4	-2.4	7.0
Farm-to-retail spread	10.8	1.2	3.4	7.9	1.4	1.5
Dairy products:						
Retail price	-1.1	2.7	.7	1.8	.8	7.0
Farm value	-11.5	6.4	-2.9	1.5	-2.3	16.3
Farm-to-retail spread	5.3	.8	2.6	2.0	2.5	2.3
Poultry:						
Retail price	-.8	-.1	4.2	3.4	1.4	6.2
Farm value	-4.7	1.5	7.2	2.8	-.8	11.0
Farm-to-retail spread	2.4	-1.2	2.0	3.9	3.0	2.8
Eggs:						
Retail price	-2.3	-10.6	8.1	-2.4	5.4	17.9
Farm value	-6.6	-22.9	14.3	-6.1	9.1	25.9
Farm-to-retail spread	2.9	3.6	2.8	1.0	2.2	10.5
Cereal and bakery products:						
Retail price	4.1	3.9	3.4	4.9	2.0	3.9
Farm value	-5.6	10.3	-2.1	12.1	7.1	14.0
Farm-to-retail spread	5.0	3.4	3.8	3.5	2.4	3.0
Fresh fruit:						
Retail price	14.6	-5.2	3.3	6.6	8.7	7.1
Farm value	34.7	-29.2	10.1	-11.4	14.1	11.4
Farm-to-retail spread	8.5	3.8	1.5	11.7	7.4	6.1
Fresh vegetables:						
Retail price	2.2	2.3	6.6	2.3	12.1	-2.0
Farm value	-10.9	8.8	5.4	-7.1	10.2	-12.9
Farm-to-retail spread	7.2	.2	7.1	5.5	12.6	1.2
Processed fruit and vegetables:						
Retail price	-1.9	2.7	-1.6	2.3	2.2	5.0
Farm value	-15.3	5.4	-16.8	5.1	7.1	.8
Farm-to-retail spread	2.9	1.9	2.9	1.5	1.1	6.2
Fats and oils:						
Retail price	4.3	-1.4	.2	2.7	2.8	2.3
Farm value	-8.5	-5.0	15.5	16.8	-3.4	-7.4
Farm-to-retail spread	8.1	-.6	-3.6	-1.2	4.8	5.5
Other prepared food:						
Retail price	4.5	2.2	2.6	2.6	2.4	3.4
Farm value	-9.7	-4.1	6.2	-1.3	3.2	3.7
Farm-to-retail spread	6.5	3.0	2.1	3.1	3.4	3.4

<sup>1</sup> Changes in retail prices are from the Consumer Price Index published by the U.S. Department of Labor, Bureau of Labor Statistics. The farm value is based on prices farmers received for commodities equivalent to food at retail. The spread between the retail price and farm value represents charges for processing and marketing.

<sup>2</sup> Preliminary.

Source: Calculated by ERS based on data from government and private sources.

The farm value of cereals and baked goods surged 14 percent in 1996, mainly reflecting higher wheat prices. Farmers received 5.9 cents in 1996 for the wheat in a 1-pound loaf of white bread selling for 88 cents in supermarkets, 0.6 cent more than in 1995. The 1996 farm value of other bread ingredients, mainly shortening and sweeteners, was 0.9 cent, slightly higher than in 1996.

Farm value of fruit averaged 11 percent higher in 1996, due mainly to weather damage in California and the Northwest that reduced supplies. The farm value of fresh vegetables averaged 13 percent lower in 1996, primarily due to a record-large potato crop that dropped farm prices for fresh potatoes by 50 percent. Potatoes are the single largest component of the fresh vegetable category.

### **Farm Value Share of Food Dollar**

The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. The farm value share averaged 25 percent of the retail price of all foods in the market basket in 1996, a 1-percent rise from 1995 (table 4). The farm value share reflects relative changes in farm and retail food prices. The 1996 farm value share increased because there was a moderate rise in retail prices and a sharp increase in farm prices. This increase contrasts with the longrun trend, in which abundant food supplies depressed farm prices while rising food processing and distributing charges boosted retail prices. These opposing forces lowered the farm value share from 37 percent in 1980 to 30 percent in 1987. The farm value share remained stable until a sharp decline in 1991, reflecting a large decline in farm prices.

Farm value share varies greatly among foods (table 5). In 1996, farm value share for a sample group of 40 foods varied from 62 percent for eggs to 5 percent for corn syrup. Generally, the farm value share decreases as the degree of processing increases. For instance, wheat is the principal ingredient of both flour and bread, but the additional manufacturing processes required for bread result in a lower farm value share of its retail price. Foods derived from animal products tend to have a higher farm value share than do those derived from crops, because farm inputs are greater for animal products than for crops.

For example, the 1996 farm value share was 48 percent for Choice beef and 57 percent for chicken, but only 8 percent for bread. Meat and poultry production require two basic production enterprises: one for the animal feed and the other for the livestock or poultry. Most other foods entail only one production enterprise. Other factors influencing the farm value share among foods include costs of transporting from farm to consumer, product perishability, and charges for retailing. These factors partly explain why the farm value share for fresh fruit and vegetables is relatively low.

The farm value of most foods that come from grains and oilseeds represents a small share of the retail price. In 1996, farmers received about 7 percent of retail bakery and cereal prices and 22 percent of retail prices of processed fruit and vegetables (table 7). Because the farm value of these foods is small, the rise in retail prices in 1996, as in most other years, resulted mostly in a widening of the farm-to-retail price spread. For example, the farm value of cereal and bakery products increased 14.0 percent in 1996. But this increase had a much smaller impact on the retail price than the 3.0-percent rise in the farm-to-retail price spread. The farm value of cereal and bakery products accounted for only a quarter of the retail price increase, with the farm-to-retail price spread comprising the remaining portion.

Marketing charges are largely independent of farm prices, as reflected in instances where retail prices have held firm or risen in the face of a decline in farm prices. Over the years, there has been a persistent tendency for such charges to rise, regardless of whether farm prices were rising or falling. Thus, increases in marketing charges can, and often do, exceed the effect of a change in farm prices on retail prices.

### **Farm-to-Retail Price Spread**

The farm-to-retail price spread is the difference between the farm value and the retail price. It represents payments for all assembling, processing, transporting, and retailing charges added to the value of farm products after they leave the farm. Price spreads are sometimes confused with marketing margins. Margins represent the difference between the sales of a given firm and the cost of goods sold.

**Table 7—Market basket of food products originating on U.S. farms by food group: Indexes of retail cost, farm value, and farm-to-retail price spread, and farm value share of retail cost<sup>1</sup>**

Year	Meat products				Poultry				Eggs			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	1982-84 = 100		Percent		1982-84 = 100		Percent		1982-84 = 100		Percent	
1966	38	44	34	58	52	53	53	53	63	65	50	66
1967	37	41	34	56	49	45	54	49	52	48	60	59
1968	38	42	33	54	51	48	54	51	56	54	61	61
1969	42	48	35	56	54	51	57	51	66	69	61	67
1970	43	47	40	53	53	46	61	46	66	64	69	63
1971	43	46	40	52	54	47	60	47	57	50	68	57
1972	48	55	42	56	54	48	60	49	56	50	68	57
1973	60	74	46	60	77	84	68	59	84	90	71	70
1974	61	67	55	54	73	76	69	56	84	89	76	68
1975	66	78	56	57	80	88	71	59	82	84	78	66
1976	66	70	63	51	77	79	75	55	91	97	81	68
1977	65	70	60	53	78	80	74	56	88	87	90	64
1978	77	85	69	54	85	93	76	58	82	83	81	65
1979	90	97	84	52	89	92	86	55	90	93	85	66
1980	93	97	89	51	94	96	92	54	89	88	89	64
1981	96	97	95	49	98	95	101	52	96	99	90	66
1982	101	104	98	52	96	91	101	51	93	91	97	63
1983	99	97	102	49	97	96	98	53	98	99	95	65
1984	100	99	100	50	107	113	101	56	109	110	107	65
1985	99	91	107	47	106	106	107	53	91	86	100	61
1986	102	94	110	47	114	115	113	54	97	92	106	61
1987	110	101	118	47	113	94	134	45	92	77	118	54
1988	112	100	125	45	121	110	133	49	94	77	124	53
1989	117	104	130	45	133	117	151	47	118	108	138	58
1990	129	117	140	46	133	108	161	44	124	108	153	56
1991	133	110	156	42	132	103	165	42	121	101	158	54
1992	131	105	158	41	131	104	163	42	108	78	163	46
1993	135	107	163	40	137	112	166	44	117	89	168	49
1994	135	96	176	36	142	115	173	43	114	84	169	47
1995	136	94	178	35	144	114	178	42	121	91	173	49
1996	140	100	181	36	152	126	183	44	142	115	191	52

See footnotes at end of table

--Continued



**Table 7—Market basket of food products originating on U.S. farms by food group: Indexes of retail cost, farm value, and farm-to-retail price spread, and farm value share of retail cost<sup>1</sup>--Continued**

Year	Dairy products <sup>2</sup>				Fats and oils <sup>3</sup>				Fresh fruit			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	1982-84 = 100		Percent		1982-84 = 100		Percent		1982-84 = 100		Percent	
1966	38	37	40	47	37	44	34	32	31	38	28	32
1967	40	38	42	47	37	38	37	28	31	37	28	31
1968	41	40	42	47	36	35	36	26	36	48	32	35
1969	42	42	43	48	36	35	36	26	34	40	32	31
1970	45	44	45	48	38	43	37	30	34	37	33	28
1971	46	44	47	47	42	49	39	32	37	42	35	30
1972	47	46	48	48	43	42	43	27	39	44	37	30
1973	51	52	50	50	47	66	40	38	44	56	40	33
1974	60	61	60	49	71	124	52	47	49	55	46	30
1975	62	63	61	50	77	97	69	34	50	58	47	30
1976	67	71	64	52	65	79	60	26	50	54	48	28
1977	69	72	68	50	71	95	62	26	58	65	55	29
1978	74	78	71	51	78	98	70	34	71	87	66	32
1979	83	88	78	52	84	106	75	34	80	89	77	29
1980	91	96	86	52	89	96	87	29	84	84	84	26
1981	97	102	93	51	99	100	98	27	88	87	89	26
1982	99	100	97	49	96	80	102	22	100	106	97	33
1983	100	100	100	48	97	96	98	27	94	80	100	27
1984	101	99	103	47	107	124	100	31	107	114	103	34
1985	103	95	110	44	109	104	111	26	118	111	122	30
1986	103	93	113	43	106	76	118	19	120	104	128	27
1987	106	93	118	42	108	74	120	18	136	114	146	26
1988	108	91	125	40	113	103	117	24	145	117	159	25
1989	116	99	131	41	121	96	131	21	155	109	176	22
1990	127	102	150	39	126	107	133	23	175	128	196	23
1991	125	90	157	35	132	98	144	20	200	173	213	27
1992	129	96	159	36	130	93	143	19	190	122	221	20
1993	129	93	163	35	130	108	138	22	196	135	224	22
1994	132	94	166	34	134	126	137	25	209	119	250	18
1995	133	92	170	33	138	121	143	24	227	136	269	19
1996	142	107	174	36	144	122	152	22	243	152	285	20

See footnotes at end of table

--Continued

**Table 7—Market basket of food products originating on U.S. farms by food group: Indexes of retail cost, farm value, and farm-to-retail price spread, and farm value share of retail cost<sup>1</sup>--Continued**

Year	Fresh vegetables <sup>4</sup>				Processed fruits and vegetables				Bakery and cereal products			
	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share	Retail cost	Farm value	Farm-to-retail spread	Farm value share
	1982-84 = 100				1982-84 = 100				1982-84 = 100			
			Percent				Percent				Percent	
1966	33	38	31	34	36	36	36	20	33	56	31	18
1967	33	38	31	32	36	33	37	18	34	54	32	17
1968	35	40	33	33	38	38	38	20	35	52	33	16
1969	36	42	35	33	39	39	38	21	36	52	34	16
1970	39	43	38	32	39	37	40	19	38	56	36	16
1971	40	46	38	33	41	38	42	18	40	57	38	16
1972	43	47	41	32	42	40	42	19	40	60	37	17
1973	53	64	48	35	44	43	44	19	44	90	38	22
1974	58	67	54	34	54	60	53	22	57	130	48	25
1975	55	67	51	35	61	66	60	21	63	106	57	18
1976	58	67	55	33	62	63	62	20	62	86	59	15
1977	65	74	62	33	65	59	66	18	63	72	61	12
1978	70	75	69	30	71	88	67	25	68	83	66	13
1979	73	71	73	28	77	91	74	24	75	95	73	14
1980	79	73	81	27	83	97	79	23	84	111	81	14
1981	94	104	90	32	92	106	89	23	92	110	90	13
1982	94	95	94	34	97	100	97	24	97	96	97	12
1983	98	97	98	34	98	93	100	23	100	101	99	12
1984	108	108	108	34	104	107	103	24	104	103	104	12
1985	104	93	109	31	107	118	104	26	108	94	110	11
1986	108	90	117	28	105	102	106	23	111	76	116	8
1987	122	110	128	31	109	111	108	24	115	71	121	8
1988	129	106	141	28	118	137	112	28	122	93	126	9
1989	143	123	153	29	125	132	123	25	132	102	137	9
1990	151	124	165	28	133	144	129	26	140	91	147	8
1991	154	111	177	24	130	122	133	22	146	85	154	7
1992	158	121	177	26	134	129	135	23	152	94	160	8
1993	168	127	190	26	132	107	139	19	157	92	166	7
1994	172	118	200	23	135	113	141	20	164	103	171	8
1995	193	130	226	23	138	121	143	21	168	110	176	8
1996	189	113	228	20	144	122	152	22	174	126	181	7

<sup>1</sup> See Table 5 for aggregated market basket data and explanations. <sup>2</sup> Includes butter. <sup>3</sup> Excludes butter and includes peanut butter. <sup>4</sup> Includes potatoes.

Source: Calculated by ERS based on data from government and private sources.

There is often a time lag between receipt and final sale of merchandise involved in the calculation of this figure. Spreads, on the other hand, represent the difference between retail and farm prices of a specific product at a given point in time.

The farm-to-retail price spread is a much larger proportion of food prices than the farm value of commodities and has grown at a greater annual rate than the farm value nearly every year of the past decade. The spread, therefore, has consistently contributed much more to rising food prices than has farm value. Higher costs of labor, packaging, and other marketing inputs push the spread wider nearly every year. The farm-to-retail spread for the market basket of foods averaged 3.2 percent higher in 1996, about the same as in 1995. This stable rise in the spread reflected a large rise in farm value, relative to the increase in aggregate retail food prices.

The market basket farm-to-retail price spread attempts to measure charges for performing services connected with a fixed quantity of foods of a constant type and quality. However, the types of services incorporated into food sold in grocery stores have changed over time, a result of new product introductions and greater food preparation—such as boneless meat and poultry products, and fruit and vegetables sold at salad bars. Prices for these new and usually higher value foods are incorporated into the market basket retail price calculations over time, thus changing the type and quality of foods in the market basket. These changes in foods marketed with added services may increase price spreads.

Price spreads increased for every market-basket food group in 1996. The largest increases were for eggs, processed fruits and vegetables, fresh fruit, and fats and oils, while the spreads for meat products and fresh vegetables rose little. The farm-to-retail price spread for red meats rose 1.5 percent, slightly more than the 1995 increase but considerably smaller than the 3.1-percent annual average rise of the last 5 years. Tight pork supplies and strong demand raised the 1996 farm value. Strong demand for pork products, particularly bacon in restaurants, was responsible for higher retail meat prices. Higher retail pork prices offset lower retail prices for beef. The combination of a markedly higher farm value and slightly higher meat prices resulted in a wider price spread

for red meats. The overall increase in the price spread for meat was mitigated by the Choice beef spread. The farm-to-retail spread for Choice beef averaged 0.5 percent lower, due mainly to a 2.5-percent decline in cattle prices that was not fully passed through in retail beef prices. The farm-to-retail price spread for pork rose 6.4 percent, after declining 5.2 percent in 1995. Retail pork prices jumped 13 percent, largely due to a 27-percent surge in the farm value.

Cereals and bakery products accounted for 21 percent of the farm-to-retail spread of the market basket. The spread for this food category rose 3.0 percent in 1996, while the farm value of ingredients rose 14 percent (table 6). Revised figures from USDA's *Food Consumption, Prices, and Expenditures, 1970-95* (SB-939, August 1997) indicate that cereal consumption increased an average of 2.9 percent per year during the last decade in response to positive nutritional perceptions, after posting increases of only 1 percent per year from 1974 to 1984.

The price spread for poultry rose 2.8 percent in 1996, slightly less than the previous year. This modest rise was primarily the result of a sharply higher farm value, which squeezed the spread. Estimates of broiler processing and wholesaling costs show a rise of 1.5 percent per year from 1987 to 1992, the most recent period for which data are available. This increase is smaller than the general rate of inflation. The price spread for eggs jumped 10.5 percent in 1996, nearly five times the pace recorded in 1995. The sharp jump (18 percent) in 1996 retail egg prices reflected sharply higher farm egg prices.

The average farm-to-retail price spread for dairy products increased 2.3 percent in 1996, slightly less than the previous year. The price spread for dairy products rose less than that for most foods in 1996, consistent with the general trend of the past decade. The 1996 price spread showed one of the smallest increases of any category (2.3 percent), reflecting the restraining influence of a 16.3-percent increase in farm value. The farm-to-retail price spread for a half-gallon of whole milk retailing for \$1.56 was 89 cents in 1996, up 4 cents from 1995.

The farm-to-retail price spread rose 6.1 percent for fresh fruit in 1996, and 1.2 percent for fresh vegetables. Retail fresh produce prices were primarily

Table 8—Price indexes of food marketing costs<sup>1</sup>

Year	Labor—Hourly earnings and benefits				Packaging and containers							
	Total	Proc- essing	Whole- saling	Retail- ing	Total	Paper boxes and con- tainers	Metal cans	Paper bags and sacks	Plastic packag- ing	Glass con- tainers	Metal foil	Transpor- tation services
							1982 = 100					
1968	31.1	32.1	31.8	29.8	35.0	37.6	28.7	38.2	39.2	30.2	47.0	27.5
1969	33.2	34.2	33.9	32.0	36.2	39.0	29.5	39.2	40.0	32.2	49.5	28.3
1970	35.7	36.7	37.3	34.1	37.7	39.7	31.1	40.8	43.0	33.8	49.9	30.8
1971	38.5	39.7	39.4	37.0	38.7	40.2	34.0	41.5	40.9	37.0	49.8	34.6
1972	41.8	40.6	42.9	40.7	40.1	41.4	36.2	43.0	41.5	38.0	49.7	35.7
1973	45.0	45.8	45.9	43.8	42.6	45.2	38.1	46.0	43.2	39.0	53.0	36.4
1974	49.2	49.8	50.0	48.3	54.4	59.7	46.8	54.8	64.8	43.7	54.7	42.1
1975	54.7	55.8	54.4	53.7	63.4	66.8	55.1	61.1	85.4	51.1	59.6	47.7
1976	59.5	60.6	59.0	58.5	67.2	69.1	58.3	64.3	94.1	54.9	65.7	52.4
1977	64.9	65.9	65.0	63.8	70.1	69.2	63.6	66.8	96.8	60.3	74.7	55.3
1978	71.3	72.0	71.4	70.7	74.4	70.5	72.6	70.5	96.1	68.7	82.4	59.4
1979	77.6	78.2	77.7	76.8	83.0	79.3	80.6	79.3	108.5	73.4	86.4	67.7
1980	85.4	85.8	84.6	85.3	95.1	92.0	89.6	89.4	119.3	82.3	95.4	80.0
1981	93.8	93.7	92.4	94.2	102.1	101.3	95.1	97.9	131.3	92.4	100.0	93.2
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.4	100.0
1983	104.1	103.6	106.9	103.3	102.0	98.5	102.9	100.4	113.1	99.1	106.4	100.9
1984	106.7	106.1	110.7	105.3	110.3	103.6	109.3	111.5	136.6	101.4	100.3	105.6
1985	105.9	108.5	111.5	101.2	113.4	106.6	114.7	116.5	137.2	106.8	98.2	106.1
1986	104.9	110.1	112.3	96.8	115.4	105.6	118.3	125.3	137.4	111.9	104.2	105.6
1987	105.4	112.2	114.7	95.1	119.9	113.0	119.1	140.8	140.1	113.0	125.2	103.7
1988	108.1	115.6	118.9	96.6	127.5	120.9	121.6	154.8	152.9	112.1	128.7	108.7
1989	111.5	118.8	123.9	99.6	132.5	127.0	121.9	156.2	156.6	115.2	121.2	109.1
1990	115.5	123.0	127.9	103.3	133.6	127.1	125.1	155.4	153.6	120.1	118.0	110.8
1991	118.4	127.7	132.5	103.9	134.9	125.7	129.4	146.7	155.4	125.4	113.0	113.9
1992	122.1	132.3	136.9	106.7	134.5	127.4	131.5	146.5	155.0	124.9	112.0	114.8
1993	126.1	135.8	142.2	110.3	134.9	126.7	134.1	150.2	154.0	125.6	111.8	114.8
1994	129.4	139.6	145.8	113.2	140.1	132.6	142.7	173.1	156.0	127.3	123.4	117.2
1995	132.8	143.2	149.9	116.1	151.1	153.8	138.9	165.6	165.3	130.3	110.6	117.7
1996	134.1	143.8	154.0	116.9	145.3	142.7	137.0	437.8	163.3	129.5	235.7	115.8

See footnote at end of table.

--Continued

**Table 8—Price indexes of food marketing costs<sup>1</sup>—Continued**

Year	Advertising	Fuel and power			Communications, water, and sewage			Maintenance/ repair	Business services	Supplies	Property taxes/ insurance	Interest, short- term	Total market- ing cost index
		Total	Electric	Petro- leum	Natural gas	Rent							
1982 = 100													
1968	39.4	14.1	24.8	10.1	9.4	54.0	39.5	32.5	37.9	35.3	35.2	49.7	31.0
1969	41.3	14.3	25.1	10.1	9.4	55.1	41.4	35.0	39.7	35.6	38.2	65.9	32.7
1970	42.1	15.0	26.1	10.5	10.5	56.3	43.7	37.6	41.7	36.8	42.1	64.9	34.8
1971	41.8	15.9	28.0	10.9	10.9	59.6	46.0	40.4	44.6	37.6	45.8	43.0	36.8
1972	43.5	16.8	29.9	11.2	11.5	63.1	47.8	42.4	46.3	41.5	49.5	39.8	39.1
1973	45.4	18.9	31.8	13.8	12.8	64.7	49.6	45.1	48.1	39.2	51.1	68.6	41.7
1974	47.8	28.2	40.2	26.9	16.4	67.6	55.2	50.5	53.0	50.2	52.6	82.8	47.8
1975	52.6	33.5	47.6	30.6	21.9	70.6	63.2	56.0	57.6	58.8	58.1	53.2	53.5
1976	58.7	37.5	51.1	33.3	29.0	74.1	66.2	60.3	61.8	62.7	62.8	45.0	58.0
1977	63.9	44.1	57.4	38.0	39.2	76.4	70.0	64.3	65.9	65.3	70.7	47.2	62.6
1978	69.7	47.0	61.7	39.3	43.3	79.0	75.4	69.8	70.4	68.4	76.6	67.2	68.0
1979	75.9	59.3	66.6	56.8	55.0	79.6	81.9	76.8	76.1	77.6	79.7	91.8	75.5
1980	82.5	79.9	79.2	84.0	73.2	82.4	88.9	85.2	83.2	89.7	87.2	103.3	85.6
1981	90.3	94.9	90.6	104.4	83.4	90.4	96.5	93.5	91.7	98.2	94.9	124.2	95.1
1982	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1983	107.7	100.0	102.9	88.5	116.7	106.9	98.6	104.3	105.3	99.1	105.7	74.8	102.7
1984	115.5	101.0	108.3	87.0	117.4	115.4	98.9	107.8	110.5	99.7	110.9	214.3	106.6
1985	123.1	99.3	111.7	81.2	117.0	120.5	99.5	110.8	116.2	99.6	116.8	67.6	107.4
1986	130.6	83.7	112.8	49.4	110.8	126.5	101.0	113.3	120.6	97.8	123.4	53.8	106.3
1987	138.8	84.6	110.9	55.5	105.9	127.7	99.2	117.7	124.9	99.2	128.9	57.1	107.9
1988	147.6	82.0	111.6	49.6	105.2	129.2	100.4	121.8	134.0	105.7	135.5	64.6	111.5
1989	157.3	87.8	115.5	58.5	108.1	132.5	102.1	126.3	140.2	111.2	141.9	74.0	115.6
1990	166.5	95.2	117.6	73.6	108.1	135.6	105.9	131.3	144.2	111.1	149.1	66.8	119.4
1991	176.9	93.0	125.2	64.2	107.5	140.2	107.0	136.2	153.5	110.4	155.1	49.2	122.0
1992	180.1	92.8	126.6	63.2	107.1	143.0	105.3	139.9	159.5	110.0	160.3	32.0	124.1
1993	187.4	95.3	128.6	63.1	114.4	144.6	103.3	143.1	166.0	111.1	165.5	27.8	127.0
1994	195.2	93.7	127.9	58.9	116.3	148.3	103.5	145.3	171.5	112.8	170.9	41.5	130.2
1995	207.3	89.9	125.9	55.3	110.2	152.6	101.8	149.5	177.2	118.5	176.4	49.9	134.1
1996	215.8	95.1	123.4	65.9	114.8	159.0	101.5	153.7	181.1	117.0	182.1	45.6	135.0

<sup>1</sup> Indexes measure changes in employee wages and benefits and in prices of supplies and services used in processing, wholesaling, and retailing U.S. farm food purchased for consumption at home.

Source: Calculated by ERS based on data from government and private sources.

affected by changes in the farm value during 1996. Retail fresh fruit prices rose 7.1 percent in response to an 11.4-percent farm value increase, while retail fresh vegetable prices declined 2 percent, reflecting a 12.9-percent farm value drop. However, a 5-year average of price changes reveals that increases in farm-to-retail price spreads had the most significant effect on retail prices. For example, the spread for fresh fruit rose an average of 6.1 percent, but the farm value posted a 1-percent drop during 1991-96. Similarly, the spread for fresh vegetables rose an average of 5.3 percent, while the farm value increased an average 0.9 percent per year.

### Prices of Marketing Inputs

Increases in farm-to-retail price spreads mainly reflect rising costs that food industry firms face. These costs include wages and salaries of workers and supplies and services that marketing firms buy from other parts of the economy. ERS maintains a food marketing cost index (FMCI) for monitoring and analyzing changes in variable operating costs incurred in processing, wholesaling, and retailing foods. The FMCI consists of hourly earnings of workers and price indexes of various marketing inputs, weighted by the share of each input in total operating costs. The FMCI is not a substitute for measures of marketing costs such as farm-to-retail price spreads and the marketing bill (see box for an explanation of these concepts). Farm-to-retail price spreads include nonfarm inputs that are not components of current operating costs, such as profits, depreciation, and long-term interest costs that are not included in the FMCI. The marketing bill allows for changes in product price, mix, quantity, and the quantity of marketing services. With the exception of product price, these factors are fixed in both the FMCI and the farm-to-retail price spread. However, the behavior of the index at least partially indicates changes in operating costs of the food marketing sector.

The largest component of the index (45 percent) is labor costs. Food containers and packaging materials (15 percent), transportation rates (11 percent), and energy costs (8 percent) complete the list of leading cost components of the index. Other cost components include advertising, maintenance and repair

services, insurance, short-term interest, rent, and miscellaneous supplies and services.

In 1996, the FMCI rose 0.6 percent, considerably less than the 3-percent increase of 1995. Packaging prices averaged 3.8 percent lower than 1995, and were the primary factor restraining growth in the FMCI. In particular, paperboard prices dropped 7.2 percent. Prices of all other packaging materials also fell in 1996. Meanwhile, labor costs grew at the same pace (2.6 percent) as recorded in 1995. Energy prices rose 5.8 percent in 1996 after declining 4 percent the previous year, mainly due to a 19.1-percent increase in oil prices (table 8).

Because businesses attempt to recover increases in variable costs, the rise in the FMCI partially explains the observed increase in the farm-to-retail price spread and food prices at retail. The smaller rise in the FMCI than the farm-to-retail price spread indicates that other factors are affecting marketing charges. These factors could include lower productivity; rising fixed costs, such as asset depreciation and interest on long-term debt; and higher profits. Weak retail sales growth and consumer price sensitivity have sparked food industry efforts to improve efficiency and minimize costs. Efforts have been made to improve labor use, conserve energy, and increase the use of technology for inventory management and other tasks.

### Price Spreads for Selected Foods

Beef supplies and consumption were up from 1994 to 1995 and 1995 to 1996 while pork supplies and consumption were down. The retail price of beef increased while the farm price decreased in 1995, resulting in a record high farm-to-retail price spread for beef on a nominal basis in 1995. The spread decreased only slightly in 1996. Retail pork prices decreased in 1995, but increased to a record nominal high in 1996. The farm price increase in 1995 narrowed the farm-to-retail price spread for pork in 1995. But in 1996, while the large decrease in production and consumption did result in a substantial increase in farm prices, the farm price increase failed to match the retail price increase, resulting in a record high farm-to-retail pork spread on a nominal basis.

## Choice Beef

Retail Choice beef prices increased in 1995, but not to the record level of 1993, and then decreased in 1996 (table 9). The 1996 weighted-average price of Choice beef was \$2.80 per pound, 13 cents lower than in 1993, and 4 cents lower than in 1995. Prices at both retail and farm levels were lowest in May and June 1996, but increased slightly by the end of the year. Prices of individual cuts ranged from an average of \$1.37 per pound for ground beef in 1995 and 1996 to nearly \$6.00 per pound for the most expensive steaks.

Farm value of beef decreased almost 11 cents in 1996 from 1994 levels. The farm value share declined, averaging a record low 49 percent of the retail price of beef in 1995, and then decreased again to 48 percent in 1996. Farm value is computed using the USDA Agricultural Marketing Service's five-region direct market price series for live slaughter steers, 65- to 80-percent Choice. Prices per pound of slaughter steers are multiplied by 2.4 pounds, the quantity of live animal required to sell 1 pound of Choice beef at retail. We then estimate the value of byproducts, principally the hide, obtained from the slaughtered animal. We subtract this byproduct value to obtain the net farm value of the meat.

The farm-to-retail price spread for Choice beef increased 9 cents to an average of \$1.46 per pound in 1995, and then decreased a cent in 1996. The spread varied from a low of \$1.33 in January 1995 to a high of \$1.58 in July 1995. The price spread for beef has increased over time. The farm-to-retail price spread for Choice beef in 1996 was 44 percent higher than in 1985. This is an average of about 4 percent per year, slightly less than the rate of inflation.

The farm-to-retail price spread pays for various marketing functions, most of which tend to increase in cost over time. The estimated cost of slaughtering and boxing beef was 21.6 cents per pound in 1995 and 19.4 cents in 1996, up from 17.4 cents in 1994 (table 10). Transportation of beef from the packer to the retailer cost 3.9 cents per retail pound in 1995 and 3.8 cents in 1996. Warehousing and store delivery were estimated to cost 12.9 cents per pound at retail in 1996. This estimate is based on data in the 1992 *Census of Wholesale Trade*, published by the U.S. Department of Commerce, which indicated that

warehousing and delivery costs represented 5.8 percent of gross sales by meat wholesalers.

Cutting and merchandising of Choice beef cost \$1.09 per pound in 1996. The cost was up 6 cents from 1994, and accounted for more than one-half the increase in the spread. This cutting and merchandising cost represents the difference between the total of other functions and the retail price. Data for 1990-96 indicate an upward trend in the cost of cutting and merchandising beef, reflecting the effects of inflation on marketing costs. In contrast, warehousing and store delivery costs have been lower in recent years, while slaughtering and boxing costs have varied widely.

## Pork

Retail pork prices averaged \$1.95 per pound in 1995, down from 1992-94 levels, but increased to a record \$2.21 on a nominal basis in 1996. Even so, prices in 1996 were only 36 percent above prices in 1985 (table 9), a smaller increase than the 45-percent increase in overall food prices between 1985 and 1996. Per capita pork consumption on a retail-weight basis in 1995 was 52.5 pounds, a little less than in 1994, but then decreased to 49.1 pounds in 1996. The net farm value in 1995 increased about 4 cents from that in 1994, which had been the lowest since 1974. In 1996, the net farm value increased to 85 cents, which is the highest since 1990. The farm value share increased to 34 percent in 1995 and to 38 percent in 1996 from a record low of 32 percent in 1994.

Farm value is computed from the average price of barrows and gilts at five midwestern markets. This average price is then multiplied by 1.7 pounds, the quantity of live animal needed to sell 1 pound of pork at retail. A value for lard and other byproducts is then subtracted to obtain the net farm value.

The farm-to-retail price spread for pork decreased to \$1.28 per pound in 1995, but increased to \$1.36 for 1996 (table 9). This was a record high pork farm-to-retail spread on a nominal basis, but was only 1 cent higher than in 1994. The farm-to-wholesale component of the total spread in 1996 (32.6 cents) was, however, lower than in 1994. The slaughtering and processing component represents charges for slaugh-

**Table 9—Choice beef and pork: Retail price, farm value, price spreads, and the farm value share of the retail price**

Item	Retail price <sup>1</sup>	Wholesale value <sup>2</sup>	Net farm value <sup>3</sup>	Price spreads			Farm value share <sup>6</sup>
				Farm-to-retail	Wholesale-to-retail <sup>4</sup>	Farm-to-wholesale <sup>5</sup>	
				<i>Cents per retail pound</i>			<i>Percent</i>
<b>Choice beef:</b>							
1980	233.6	171.1	145.7	87.9	62.5	25.4	62
1981	234.7	164.4	139.1	95.6	70.3	25.3	59
1982	238.4	165.9	141.1	97.3	72.5	24.8	59
1983	234.1	160.1	136.8	97.3	74.0	23.3	58
1984	235.5	162.5	140.7	94.8	73.0	21.8	60
1985	228.6	148.8	127.4	101.2	79.8	21.4	56
1986	226.8	146.5	125.0	101.8	80.3	21.5	55
1987	238.4	160.0	138.7	99.7	78.4	21.3	58
1988	250.3	169.4	148.3	102.0	80.9	21.1	59
1989	265.7	176.8	157.6	108.1	88.9	19.2	59
1990	281.0	189.6	168.4	112.6	91.4	21.2	60
1991	288.3	182.5	160.2	128.1	105.8	22.3	56
1992	284.6	179.6	161.8	122.8	105.0	17.8	57
1993	293.4	182.5	164.1	129.3	110.9	18.4	56
1994	282.9	166.7	145.5	137.4	116.2	21.2	51
1995	284.4	163.9	138.4	146.0	120.5	25.5	49
1996	280.2	158.1	134.9	145.3	122.1	23.2	48
<b>Pork:</b>							
1980	139.4	98.0	63.2	76.2	41.4	34.8	45
1981	152.4	106.7	70.3	82.1	45.7	36.4	46
1982	175.4	121.8	88.0	87.4	53.6	33.8	50
1983	169.8	108.9	76.5	93.3	60.9	32.4	45
1984	162.0	110.1	77.4	84.6	51.9	32.7	48
1985	162.0	101.1	71.4	90.6	60.9	29.7	44
1986	178.4	110.9	82.4	96.0	67.5	28.5	46
1987	188.4	113.0	82.7	105.7	75.4	30.3	44
1988	183.4	101.0	69.4	114.0	82.4	31.6	38
1989	182.9	99.2	70.4	112.5	83.7	28.8	38
1990	212.6	118.3	87.2	125.4	94.3	31.1	41
1991	211.9	108.9	78.4	133.5	103.0	30.5	37
1992	198.0	98.9	67.8	130.2	99.1	31.1	34
1993	197.6	102.8	72.5	125.1	94.8	30.3	37
1994	198.0	98.9	62.9	135.1	99.1	36.0	32
1995	194.8	98.8	66.7	128.1	96.0	32.1	34
1996	220.9	117.2	84.6	136.3	103.7	32.6	38

<sup>1</sup> Composite of all cuts.

<sup>2</sup> For quantity equivalent to 1 retail pound: beef, 1.142 pounds of wholesale cuts; pork, 1.06 pounds of wholesale cuts.

<sup>3</sup> For quantity of live animal equivalent to 1 retail pound, minus byproduct allowance: beef, 2.4 pounds; pork, 1.7 pounds.

<sup>4</sup> Includes retailing, meat fabricating, wholesaling, and intracity transportation.

<sup>5</sup> Charges for livestock processing and transporting of meat to city where consumed.

<sup>6</sup> Percentage of retail price.

Source: Calculated by ERS based on data from government and private sources.



**Table 10—Choice beef and pork: Farm value, retail price, and estimated marketing costs by function**

Item	1990	1991	1992	1993	1994	1995	1996
<i>Cents per retail pound</i>							
<b>Beef:</b>							
Farm value	168.4	160.2	161.8	164.1	145.5	138.4	134.9
Slaughtering/boxing carcass	17.4	18.5	14.1	14.6	17.4	21.6	19.4
Intercity transportation	3.8	3.8	3.7	3.8	3.8	3.9	3.8
Warehousing/store delivery	16.3	16.7	13.1	13.5	13.0	13.1	12.9
Cutting/merchandising	75.1	89.1	91.9	97.4	103.2	107.4	109.2
Retail price	281.0	288.3	284.6	293.4	282.9	284.4	280.2
<b>Pork:</b>							
Farm value	87.2	78.4	67.8	72.5	62.9	66.7	84.6
Slaughtering/processing	27.6	27.0	27.7	26.9	32.5	28.6	29.2
Intercity transportation	3.5	3.5	3.4	3.4	3.5	3.5	3.4
Warehousing/store delivery	12.3	12.3	9.1	9.1	9.1	9.0	10.2
Cutting/merchandising	82.0	90.7	90.0	85.7	90.0	87.0	93.5
Retail price	212.6	211.9	198.0	197.6	198.0	194.8	220.9

Source: Calculated by ERS based on data from government and private sources.

tering the hog, cutting the carcass into primals, and includes processing hams, bacon, and other products. We estimate this spread by deducting the farm value and intercity transportation costs from the composite wholesale price of pork. The transportation portion of the price spread for pork between the packer and retail marketing areas has stayed about the same for several years. The warehousing and store delivery spread was down only slightly in 1995 and increased in 1996 (table 10).

Cutting and merchandising costs (94 cents) made up the largest component of the farm-to-retail price spread for pork in 1996. This figure was only 3 cents higher than pork's cutting and merchandising cost in 1991. The cutting and merchandising component is calculated as a residual between the total of all other functions and the retail price. The trend in this component has been fairly flat the last 6 years.

### Other Animal Products

Retail prices rose 5.6 cents per pound for whole, ready-to-cook chicken in 1996, while farm value rose 5.9 cents (table 11). Thus, the marketing spread narrowed 0.3 cent in 1994, the fourth decline of the last 5 years. The spread was stable from 1981 to 1986, averaging 33.5 cents per pound. From 1986 to 1991, the marketing spread trended up to average 44.5 cents per pound in 1991. Broiler processing costs have increased little in recent years, reflecting gains

in labor productivity that have offset rising labor and other input costs.

Much of the demand for broilers is for further processed products. Broiler producers are cutting chicken into parts, and most producers are further processing chicken into fillets, nuggets, and other value-added products according to buyers' specifications. The processor generally realizes a more favorable gross margin and increased volume from this further processing. Most of these products are served through fast-food and institutional outlets, but considerable volumes of chicken parts are sold through retail stores for home consumption. These further processed products are not included in farm-to-retail price spread computations, but they represent a source of market strength that supported prices in 1996 as per capita consumption of broilers continues to rise at the relatively sharp pace of 3.8 percent per year.

Egg prices increased 18 cents in 1996, after rising 6 cents in 1995. For 1996, retail shell-egg prices averaged \$1.11 per dozen of grade A, large (table 11). The farm value increased 14.1 cents to 68.7 cents, while the price spread between the farm value and the retail price accounted for the remaining 4 cents of the retail price rise. This rise is consistent with the general upward trend in the price spread for eggs since 1985, and primarily reflects increases in the higher 1996 farm value. However, the spread is the

**Table 11—Broilers, eggs, and fluid milk: Farm value, marketing costs by function, and retail price**

Year	Broilers, ready-to-cook, whole (pound)		Eggs, Grade A, large (dozen)		Fluid whole milk	
	Farm value <sup>1</sup>	Retail price <sup>3</sup>	Farm value <sup>1</sup>	Retail price <sup>3</sup>	Farm value <sup>2</sup>	Retail price <sup>3</sup>
<i>Cents</i>						
1975	37.0	63.2	50.8	77.0	41.2	76.9
1976	32.6	59.7	58.0	84.9	46.2	81.0
1977	33.0	60.1	53.8	82.3	45.1	82.1
1978	36.8	66.5	49.7	78.5	47.0	86.1
1979	36.8	68.0	53.7	85.9	52.2	96.0
1980	39.4	70.9	51.0	84.3	55.8	104.9
1981	39.4	73.2	56.9	89.9	59.5	111.7
1982	37.8	71.4	54.5	86.7	59.2	112.4
1983	41.2	72.5	59.5	89.4	59.5	112.8
1984	46.7	81.0	66.0	100.5	58.2	112.7
1985	42.4	76.3	51.4	80.4	56.1	113.4
1986	49.0	83.5	55.4	87.0	54.2	111.4
1987	40.2	78.5	46.0	78.3	59.0	113.7
1988	48.1	85.4	46.0	79.0	63.6	116.4
1989	50.8	92.7	64.4	99.8	54.0	126.9
1990	46.3	89.9	64.7	101.4	59.7	142.4
1991	43.6	88.1	59.1	98.9	58.2	136.8
1992	44.6	86.9	46.3	86.0	60.7	139.2
1993	48.2	89.0	53.1	91.1	58.2	139.4
1994	49.4	90.1	49.9	86.3	60.7	144.0
1995	48.8	91.7	54.6	92.5	58.2	142.9
1996	54.7	97.3	68.7	110.6	66.5	155.8

<sup>1</sup> Farm values are derived from U.S. average broiler and market egg prices that USDA's National Agricultural Statistics Service publishes monthly.

<sup>2</sup> Prices farmers receive are normally quoted for 3.5 percent butterfat at plant of first receipt. This price has been adjusted for transportation from farm to first plant to get the farm price, then adjusted to get the value of milk containing 3.3 percent butterfat, the usual butterfat content at retail. There are approximately 23.3 half-gallons of milk per 100 pounds.

<sup>3</sup> Average of Bureau of Labor Statistics monthly prices.

Source: Calculated by ERS based on data from government and private sources.

primary determinant of retail prices during most years.

The retail price of fluid whole milk rose 12.9 cents per half-gallon in 1996. Since the early 1980's, retail milk prices have tended to rise less than broader measures of consumer prices. The 1996 average retail price for a half-gallon of whole milk was \$1.56, which was 40 percent higher than in 1986 (table 11). This compares with a 44-percent average increase in grocery store food prices.

Sharply higher farm milk prices and a small expansion in the farm-to-retail price spread shaped milk

prices in 1996. The farm-to-retail price spread for fluid milk increased 4.6 cents to 89.3 cents in 1996. Farmers received an average of 66.5 cents for milk equivalent to a half-gallon at retail in 1996, 8.3 cents more than in 1995.

The average retailing margin for fluid milk in 1992, the latest available data, comprised 25 percent of the retail price. In 1982, the retailing margin made up only about 12 percent of the retail price.

The same firm typically performs the processing and wholesaling of milk. The combined processing and wholesaling margin was about 39 cents in 1992.

**Table 12--Selected fruit and vegetables: Farm value, marketing costs by function, and retail price**

Year	Oranges California (pound)		Iceberg lettuce		Orange juice, frozen concentrate	
	Farm value <sup>1</sup>	Retail price <sup>2</sup>	Farm value	Retail price	Farm value	Retail price
<i>Cents</i>						
1982	17.1	47.6	8.5	56.2	46.3	106.1
1983	5.3	38.7	6.8	55.5	44.0	104.4
1984	17.2	49.9	5.1	50.4	49.0	121.6
1985	12.4	53.4	8.2	52.6	61.9	131.6
1986	8.2	47.6	6.8	53.9	39.6	115.6
1987	10.0	55.0	11.1	59.5	42.5	114.8
1988	11.8	56.4	10.1	60.3	51.9	136.7
1989	11.3	56.1	10.0	60.6	56.0	139.4
1990	11.3	56.6	9.3	59.6	55.4	162.1
1991	33.6	89.2	8.7	61.1	53.1	137.9
1992	10.0	56.9	9.6	57.7	57.2	141.5
1993	12.6	58.6	12.0	65.6	40.2	122.2
1994	11.0	56.0	11.9	60.8	46.0	120.8
1995	12.3	62.3	17.6	80.1	48.0	120.6
1996	11.0	66.0	12.0	65.0	47.0	128.0

<sup>1</sup> Payment for the quantity of farm product equivalent to the retail unit minus imputed value of byproducts, computed from average grower prices.

<sup>2</sup> U.S. average retail prices. Prices of fresh produce weighted by quantities marketed except for 1992.

Source: Calculated by ERS based on data from government and private sources.

Processing costs have remained nearly stable since 1986, after rising 16 percent from 1982 through 1986. The processing and wholesaling margin constituted 28 percent of the retail price in 1992.

Fluid milk processors earned 94 cents before taxes per hundredweight (cwt) of raw milk processed in 1990, the latest data available. Net returns had not been nearly that high since 1985. Processors reduced their operating costs 18 cents per cwt during 1990, and container costs fell 15 cents to \$1.93 per hundredweight in 1990 after peaking at \$2.08 in 1989.

Operating costs of processor-distributors increased 50 cents per cwt from 1983 to 1990. The increase was mainly due to higher container, rent, depreciation/repair, and insurance costs.

## Fruits and Vegetables

The price spread for fresh fruits and vegetables increased about 3.7 percent in 1996, slightly faster than the average of all foods. The increase was primarily due to higher spreads for fresh fruits. For example, the farm-retail price spread for California

oranges was 10 percent higher in 1996 than in 1995. Retail prices of oranges climbed, while farm value dropped (table 12). In contrast, the 1996 farm-to-retail price spread for potatoes rose only 0.7 percent due to large production, which lowered the farm value. Farm value of lettuce dropped 33 percent, while retail prices fell 19 percent.

Retailing accounts for the largest share of the marketing expense for fresh produce items. Retailing expenses for oranges averaged 55 percent of the farm-to-retail spread during 1989-91 (latest data available). The retailing share averaged 67 percent for lettuce.

Produce margins generally exceed the average margin of the typical supermarket, and produce is the most profitable and fastest growing department of the typical store. For example, *Supermarket Business* indicates that the fresh produce margin was 42.6 percent in 1995, considerably larger than the 32.4-percent average for all foods. The larger margin reflects larger retailing costs associated with increased perishability and the labor required to handle fresh produce. The cost of transportation and refrigeration

**Table 13—White bread: Retail price, farm value of ingredients, farm-to-retail price spread, and farm value share of retail price per 1-pound loaf**

Year	Retail price	Farm value of ingredients			Farm-retail spread	Farm value share	
		Wheat <sup>1</sup>	Other farm ingredients <sup>2</sup>	All ingredients		Wheat	All ingredients
<i>Cents</i>						<i>Percent</i>	
1970	27.7	2.6	0.8	3.4	24.3	9	12
1971	28.5	2.6	.9	3.5	25.0	9	12
1972	28.2	2.9	.9	3.8	24.4	10	13
1973	31.5	4.1	1.4	5.5	26.0	13	17
1974	39.3	5.4	2.5	7.9	31.4	14	20
1975	41.0	4.5	2.3	6.8	34.2	11	17
1976	40.2	3.8	1.7	5.5	34.7	9	14
1977	40.5	2.7	.7	3.4	37.1	7	8
1978	41.7	3.3	.7	4.0	37.7	8	10
1979	46.7	4.1	.8	4.9	41.8	9	10
1980	50.9	4.5	.8	5.3	45.6	9	10
1981	52.5	4.7	.8	5.5	47.0	9	10
1982	53.2	4.4	.6	5.0	48.2	8	9
1983	54.2	4.5	.7	5.2	49.0	8	9
1984	54.1	4.3	.8	5.1	49.0	8	9
1985	55.3	4.1	.7	4.8	50.5	7	9
1986	56.5	3.5	.5	4.1	52.5	6	7
1987	54.7	3.3	.5	3.8	50.9	6	7
1988	61.3	4.1	.7	4.8	56.5	7	8
1989	66.6	4.8	.7	5.5	61.1	7	8
1990	69.5	3.7	.7	4.4	65.1	5	6
1991	71.1	3.4	.6	4.0	67.1	5	6
1992	75.0	4.4	.6	5.0	70.0	6	7
1993	75.2	4.1	.7	4.8	70.4	5	6
1994	76.1	4.5	.7	5.2	70.9	6	7
1995	79.1	5.3	.7	6.0	73.1	7	8
1996	87.6	5.9	.9	6.8	80.8	7	8

<sup>1</sup> Payment to farmers for the quantity of wheat (approximately 0.86 pound) required to produce the flour for a 1-pound loaf of white bread, minus the value of millfeed byproducts. Based on average farm prices for hard winter and spring wheat in 11 States producing these wheats through 1982; all wheat prices used beginning in 1983.

<sup>2</sup> Value for lard, shortening, granulated sugar, and nonfat dry milk through 1976. Value for 1977 forward is for lard, soybean oil, high-fructose corn syrup, corn syrup, and soy-whey blend.

Source: Calculated by ERS based on data from government and private sources.

required to move a product such as peaches is also absorbed in the margin. Therefore, prices may not necessarily drop proportionately to lower prices stemming from a larger crop.

While gross margins alone do not reflect actual profitability, the percentage of storewide gross profit dollars that fresh produce contributed has been much greater than their contribution to store sales would suggest. Produce accounts for 8.7 percent of total

sales of the typical supermarket, but yields about 20 percent of net profit dollars, according to a survey by the Produce Marketing Association.

During 1989-91 (the most recent period for which data are available), packing costs made up the second largest share of the farm-to-retail price spread for lettuce, averaging 14 percent. Intercity transportation costs were the third largest share, accounting for 11 percent of the price spread. For oranges, wholesaling

**Table 14—Sugar farm value, price spreads, and retail price**

Item	Crop year beginning October					
	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
	<i>Cents per pound</i>					
Farm value <sup>1</sup>	14.6	14.9	15.0	14.2	13.7	14.0
Processing and refining spread <sup>2</sup>	16.9	18.0	17.5	17.7	17.5	17.4
Wholesaling and retailing spread <sup>3</sup>	5.9	6.8	7.6	6.7	6.7	6.6
Retail price <sup>4</sup>	37.4	39.6	40.1	38.6	37.9	38.0

<sup>1</sup> Based on season average prices U.S. sugar producers received for sugarcane and sugar beets.

<sup>2</sup> Difference between the farm value and an average of effective wholesale prices.

<sup>3</sup> Difference between the retail price and the wholesale price.

<sup>4</sup> Average of Bureau of Labor Statistics' monthly retail prices for sugar sold in 33- to 80-ounce packages.

Source: Calculated by ERS based on data from government and private sources.

was the second largest share, averaging 18 percent, followed closely by packing costs.

The price spread for processed fruit and vegetables rose 6.2 percent in 1996. The principal item in this food group is frozen concentrated orange juice. The retail price of a 12-ounce can of frozen juice rose 6 percent in 1996 to \$1.28. The price increase mainly reflected a 12-percent rise in the price spread. This increase was mitigated by a 2.1-percent farm value decline, which reflected a 33-percent increase in the Florida orange crop. Over 1989-91 (the most recent period for which data are available), charges for retailing made up 38 percent of the farm-to-retail price spread for frozen concentrated orange juice, and processing equaled 37 percent of the price spread. Packaging represents a major cost of processing, but automated operations minimized the labor cost of concentrated orange juice processing. Wholesaling charges were about 21 percent, and transportation costs were about 4 percent of the price spread.

### Other Crop Products

The average retail price of white bread in 1996 was 88 cents per pound, 11 percent higher than in 1995 (table 13). This price is the average of monthly prices reported by the U.S. Bureau of Labor Statistics. The farm value of wheat, at 5.9 cents, was 0.6 cent higher in 1996 than in 1995. The farm value represents the payment to farmers for the quantity of wheat (approximately 0.86 pound) required to produce the flour for a 1-pound loaf of bread. The payment is computed from the average farm price for all

wheat. A deduction is made for the value of millfeed, a byproduct of milling the wheat. The value of the millfeed ranges from 15 percent to 20 percent of the value of the wheat, depending on the flour-milling extraction rate, the price of flour, and the price of millfeed.

Other farm-derived ingredients, including lard, soybean oil, high-fructose corn syrup, and soy-whey blend, contributed 0.9 cent to a total farm value of 6.8 cents. The farm value percentage of all ingredients was 8 percent of the retail price in 1996, the same as in 1995. Thus, the farm-to-retail spread—consisting of wheatmilling, breadbaking, and distribution costs—was nearly all of bread's retail price.

Because of the stability that the price-support program for sugar provided, retail sugar prices—together with the farm value and price spreads—changed relatively little from year to year. On balance, farm values rose slightly in 1995/96. This relatively stable pattern may not hold in the future as price supports are rescinded, pursuant to the Federal Agriculture Improvement and Reform Act of 1996.

The 1995/96 farm value of a pound of sugar was 14.2 cents, about 2.2 percent higher than that of a year earlier (table 14). The farm value is based on the season-average prices that growers received in the United States for sugarcane and sugar beets, based on raw and refined sugar prices. The farm value accounted for 34 percent of the retail price of sugar in 1996, the same as the previous 2 years.

The farm-to-retail price spread for sugar was 27 cents in 1995/96, 2 cents higher than the previous year.

The processing and refining component of the spread increased 4.3 percent to 19.3 cents. This component is the difference between the farm value and an average effective wholesale price for sugar packed in 5-pound bags. The processing and refining component covers all the functions of transporting sugarcane and sugar beets to processing plants, processing sugarcane and refining raw cane sugar, processing sugar beets, and selling sugar to wholesalers.

The wholesale-retail spread, the difference between the average retail price and the average wholesale price for sugar, was estimated at 7.3 cents per pound in 1995/96, up slightly from the previous year. Retail prices increased by about 1.9 cent per pound. The wholesaling and retailing spread includes intercity transportation and wholesaling and retailing charges.

## Food Industry Costs, Profits, and Productivity

Many factors influence how much the food industry charges for its services. Food industry input costs, profits, and productivity largely determine the price of food products when they reach the consumer.

### Food Spending: How It Was Distributed

Food spending for domestically produced food represents the retail market value of food purchased by or for civilian consumers. Both the quantities of food bought and the prices paid affect spending levels. The expenditures reported in this section include spending at grocery stores, eating places, and institutions. These estimates are smaller than the amount consumers spent for all food because expenditures for imported food and fishery products are excluded. In this section, food expenditures are broken into two components (see box on page 6 for more information):

- The farm value is a measure of the payments farmers received for the raw commodities equivalent to food purchased by consumers at food stores and eating places.
- The marketing bill is the difference in dollars between the farm value and consumer expenditures for food produced on U.S. farms.

Changes in 1996's bill can be evaluated by breaking down the bill into costs of principal inputs, such as labor and packaging.

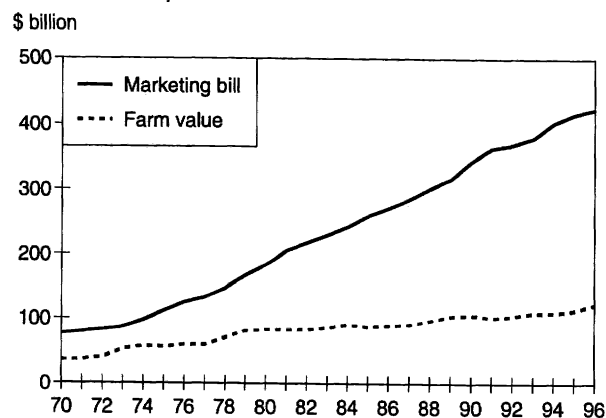
Most of these estimates are based on secondary data, and are not direct measures of consumer expenditures or actual marketing costs. The limited accuracy of the data reported in this section makes them general indicators, and not precise measures, of levels and yearly changes.

## Food Expenditures

Consumers spent \$547 billion for food originating on U.S. farms in 1996 (fig. 3 and table 15). About 60 percent of consumers' food expenditures was spent at retail grocery stores on food for use at home. The remaining 40 percent represented the retail value of food served in public eating places, hospitals, schools, and other institutions. Market shares have held steady in recent years.

Consumer expenditures for domestic farm foods in 1996 rose about 3.2 percent, about the same as 1995, and 1.5 percent more than in 1994. Spending for food purchased at home grew more than that for food purchased at restaurants, contrary to the general trend. Sales data reported by the U.S. Census Bureau suggest that consumers are purchasing greater quantities of food in restaurants. Nominal sales at eating places rose 1.8 percent in 1996, but when adjusted for the rise in prices, 1996 sales were 0.7 percent

Figure 3  
**Distribution of food expenditures**  
The marketing bill was 77 percent of 1996 food expenditures.



**Table 15—Marketing bill and farm value components of consumer expenditures for domestically produced farm foods**

Year	Consumer expenditures			Marketing bill	Farm value	Farm value share of expenditures
	Total	At home <sup>1</sup>	Away from home <sup>2</sup>			
	-----Billion dollars-----					Percent
1952	50.9	--	--	30.5	20.4	40
1953	51.0	--	--	31.5	19.5	38
1954	51.1	--	--	32.3	18.8	37
1955	53.1	--	--	34.4	18.7	35
1956	55.5	--	--	36.3	19.2	35
1957	58.3	--	--	37.9	20.4	35
1958	61.0	--	--	39.6	21.4	35
1959	63.6	--	--	42.4	21.2	33
1960	66.9	--	--	44.6	22.3	33
1961	68.7	--	--	45.7	23.0	33
1962	71.3	--	--	47.6	23.7	33
1963	74.0	56.0	18.0	49.9	24.1	33
1964	77.5	58.5	19.0	52.6	24.9	32
1965	81.1	60.2	20.9	54.0	27.1	33
1966	86.9	64.0	22.9	57.1	29.8	34
1967	91.6	66.8	24.8	62.4	29.2	32
1968	96.8	69.5	27.3	65.9	30.9	32
1969	102.6	73.1	29.5	68.3	34.3	33
1970	110.6	78.2	32.4	75.1	35.5	32
1971	114.6	80.6	34.0	78.5	36.1	32
1972	122.2	85.4	36.8	82.4	39.8	33
1973	138.8	98.5	40.3	87.1	51.7	37
1974	154.6	109.5	45.1	98.2	56.4	36
1975	167.0	116.2	50.8	111.4	55.6	33
1976	183.3	127.2	56.1	125.0	58.3	32
1977	190.9	130.8	60.1	132.7	58.2	30
1978	216.9	149.2	67.7	147.4	69.5	32
1979	245.2	169.4	75.8	166.0	79.2	32
1980	264.4	180.1	84.3	182.7	81.7	31
1981	287.7	194.0	93.7	206.0	81.7	28
1982	298.9	196.7	102.2	217.5	81.4	27
1983	315.0	204.6	110.4	229.7	85.3	27
1984	332.0	213.1	118.9	242.2	89.8	27
1985	345.4	220.8	124.6	259.0	86.4	25
1986	359.6	226.0	133.6	270.8	88.8	25
1987	375.5	230.2	145.3	285.1	90.4	24
1988	398.8	242.1	156.7	301.9	96.8	24
1989	419.4	255.5	163.9	315.6	103.8	25
1990	449.8	276.2	173.6	343.6	106.2	24
1991	465.1	286.1	179.0	363.5	101.6	22
1992	474.5	289.6	184.9	369.4	105.1	22
1993	489.2	294.9	194.3	379.6	109.6	22
1994	512.2	308.7	203.5	402.6	109.6	21
1995	529.5	316.9	212.6	415.7	113.8	21
1996 <sup>1</sup>	546.5	327.5	219.0	423.7	122.8	23

-- = Not available. <sup>1</sup> Includes food purchased primarily at retail food stores. <sup>2</sup> Includes food purchased at restaurants, fast-food outlets, and other public eating places, and food served in institutions, such as hospitals, schools, and rest homes. <sup>3</sup> Preliminary. Some historical data have been revised.

Source: Calculated by ERS based on data from government and private sources.

lower than those in 1995. Meanwhile, spending for domestic farm foods at grocery stores increased 3.3 percent in current dollars, but dropped 0.4 percent in real dollars. Therefore, there was no real growth in either industry during 1996.

## **Farm Value**

The farm value of food commodities originating on U.S. farms was about \$123 billion in 1996, a \$9-billion increase over 1995. The higher farm value reflected higher farm prices of pork, eggs, dairy products, and cereal. The largest share of the money farmers received for domestic food sales was for meat products. In 1996, the farm value of meat was about 29 percent of the total value of farm food. The next largest share, 20 percent, was for dairy products. Livestock and dairy farmers garnered about half of the total farm value, but they bought substantial amounts of grain from crop farmers. Fruits and vegetables were the third largest category, accounting for 16 percent of the 1996 farm value.

The farm value of food commodities rose 2 percent in 1996, and represented 23 percent of consumer expenditures. The farm value is a much smaller part of expenditures for food eaten away from home than for food bought at stores, because the cost of preparing and serving food is a major part of the cost of food eaten away from home.

## **Marketing Bill**

The marketing bill, the difference between what consumers spent for food and the farm value of the food, amounted to \$424 billion in 1996, \$8 billion more than in 1995. In 1996, the farm value accounted for most of the increase in consumer food spending (in nominal dollars), for the first time since 1973. In 1996, the marketing bill added about \$8 billion to consumer food spending, while farm value added \$9 billion.

The marketing bill rose 1.9 percent in 1996. This increase was the result of a sharp 7.9-percent increase in the farm value, coupled with a modest 3.2-percent increase in consumer food expenditures. In sum, the marketing bill rose at a slower (percentage) pace than the farm value, as it did in 1995. Firms that provided marketing services absorbed

most of the farm value increase. Higher labor costs accounted for most of the 1996 increase in the marketing bill, while packaging costs actually declined. Other inputs, such as transportation, rose at a faster pace than the marketing bill.

Marketing costs contributed less than usual to food expenditure increases in 1996. Consumer expenditures for farm foods have increased \$187 billion since 1986. About \$153 billion of this increase consists of marketing charges. Farm value has increased only \$34 billion since 1986.

## **What the Marketing Bill Bought**

The food processing and marketing industry is an important part of the American economy. The \$424 billion the industry received from consumers in 1996 paid the wages and salaries of 13.5 million employees and paid for all the other costs of doing business.

The marketing bill pays for all of the major functions performed by the food industry—processing, wholesaling, transporting, and retailing. The increase in 1996's marketing bill can be analyzed by looking at the specific cost items that the food industry incurred to perform these functions.

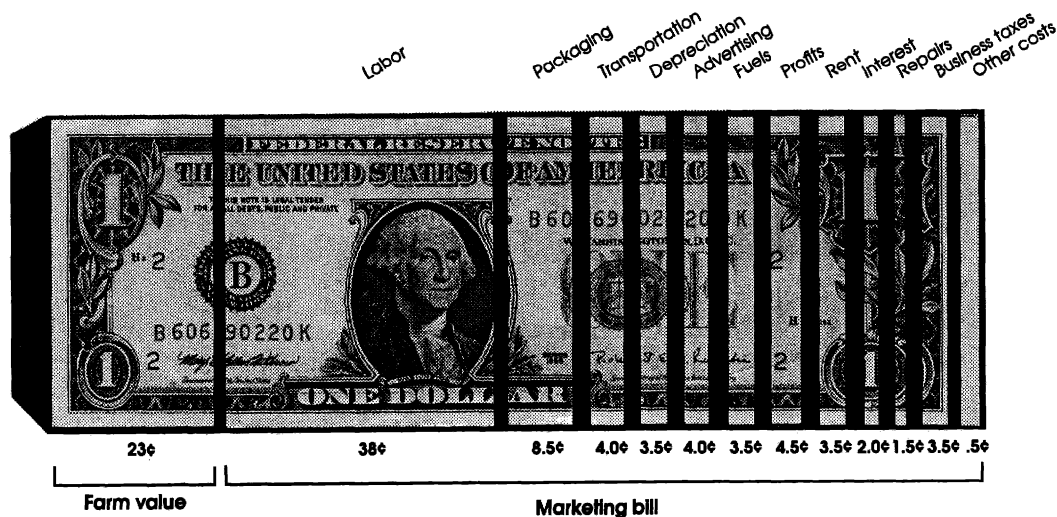
## **Labor Costs**

Labor costs overshadow all other cost components of the marketing bill. Rising labor costs have accounted for over half of the total increase in the marketing bill during the last decade. Higher labor costs are primarily responsible for the 1.9-percent increase in the marketing bill from 1995 to 1996. Direct labor costs amounted to about \$206.3 billion in 1996, or 38 percent of food expenditures (fig. 4 and table 16). Labor costs consist of wages and salaries, employee benefit costs such as group health insurance, estimated earnings of proprietors and family workers, and tips for foodservice. Direct labor costs do not include the costs of labor engaged in for-hire transporting of food or in manufacturing and distributing supplies that food industry firms use.

Labor costs in the food industry rose about 4.9 percent in 1996, slightly less than the increase recorded in 1995. The increase reflected higher wages, benefit



Figure 4

**What a dollar spent for food paid for in 1996**

Economic Research Service, USDA

costs, and employment. The following discussion identifies developments in each of these components.

Hourly earnings of food manufacturing employees rose 2.6 percent in 1996, about the same as 1995's rise (table 17). The average hourly earnings of food-store employees rose by 2.8 percent, compared with 2.6 percent in 1995. The relatively stable rates of increase in these two sectors partially reflect provisions of union contracts negotiated over the last few years. Average hourly earnings of wholesale trade employees rose 2.3 percent, compared with 2.6 percent in 1995. The average hourly earnings of eating and drinking place employees advanced 3.6 percent, compared with 2.2 percent in 1995. This higher rate of growth reflects brisk sales in the away-from-home market during most of the last decade, when sales increased an average of 5.1 percent per year. Moreover, the increase reflects the fact that this sector was one of the highest contributors to U.S. job growth in 1996.

Wage supplements increased because of rising health insurance premiums and pensions. Health insurance benefit costs, which have skyrocketed in recent years, increased because of the rising cost of medical care. For a number of years, health benefits were the number one issue in collective bargaining discussions between workers and food companies. They remain a major management concern. These benefits can

take up anywhere from 10 to 30 percent of the cash available in union contracts. Money that could be directed toward wage increases is instead being directed toward health care packages. However, the CPI for medical services increased 3.5 percent in 1996, smaller than both the 4.5-percent increase recorded in 1995 and the 6.5-percent average annual increase of the last 10 years, helping to mitigate labor cost increases.

Food retailing employment rose about 1.9 percent in 1996, reflecting flat retail sales and managerial efforts to restrain cost increases. Many food retailing employees are part-time workers. Part-time employees lower labor costs in several ways. They are often paid less and receive fewer benefits than full-time employees. Part-timers also cut labor costs by reducing overtime work by full-time employees. Greater use of part-time workers has likely held down the rise in hourly earnings in food retailing. Employment rose 1.8 percent in eating places and declined 1.6 percent in the food manufacturing industry. Altogether, 13.5 million workers were employed in processing and distributing food in 1996, up 1.4 percent from 1995. More than half, or 7.5 million people, were employed in away-from-home eating places. Foodstores employed 3.4 million people, food processors employed 1.7 million people, and food wholesalers employed about 906,000 people.

**Table 16—Components of the marketing bill for domestically produced farm food**

Year	Labor <sup>1</sup>	Packaging materials	Intercity rail/truck	Fuels/ electric	Corporate profits	Other <sup>2</sup>	Total marketing <sup>3</sup>	Advertising	Depreciation	Net interest	Net rent	Repairs	Taxes	Other
<i>Billion dollars</i>														
1967	25.9	7.3	4.3	--	3.4	21.5	62.4	2.5	2.5	0.5	2.3	1.0	2.6	10.1
1968	28.0	7.6	4.5	--	3.6	22.2	65.9	2.6	2.7	0.7	2.4	1.1	2.8	10.0
1969	30.4	7.9	4.6	--	3.6	21.8	68.3	2.7	2.8	0.8	2.5	1.2	3.0	8.7
1970	32.2	8.2	5.2	2.2	3.6	23.7	75.1	2.7	3.1	1.0	2.7	1.4	3.3	9.4
1971	34.5	8.5	6.0	2.4	3.9	23.2	78.5	2.8	3.3	1.0	2.9	1.5	3.6	8.0
1972	36.6	8.9	6.1	2.5	4.0	24.3	82.4	3.0	3.5	1.1	3.1	1.6	3.9	8.2
1973	39.7	9.4	6.4	2.8	5.4	23.4	87.1	3.0	3.8	1.4	3.3	1.7	4.4	5.9
1974	44.3	11.8	7.5	3.7	6.1	24.8	98.2	3.4	4.1	1.7	3.7	1.8	4.8	5.2
1975	48.3	13.3	8.4	4.6	7.1	29.7	111.4	4.0	4.6	1.7	4.1	2.1	5.3	8.1
1976	53.8	14.5	9.1	5.0	7.7	34.9	125.0	4.8	5.0	1.7	4.7	2.4	6.0	10.3
1977	58.3	15.1	9.7	6.0	8.0	35.6	132.7	5.0	5.6	1.9	5.1	2.5	6.3	9.2
1978	66.2	16.6	10.5	7.1	9.9	37.1	147.4	5.6	6.2	2.3	5.5	2.9	7.0	7.5
1979	75.2	18.6	11.8	8.2	10.0	42.3	166.1	6.7	7.2	2.9	6.1	3.3	7.8	8.3
1980	81.5	21.0	13.0	9.0	9.9	48.3	182.7	7.3	7.8	3.4	6.8	3.6	8.3	11.0
1981	91.0	22.6	14.3	10.0	9.7	58.4	206.0	8.7	9.4	3.9	7.6	4.0	9.1	15.7
1982	96.6	23.7	14.7	11.0	9.4	62.1	217.5	9.0	11.1	4.4	7.7	4.1	9.5	16.3
1983	102.4	24.7	15.4	11.7	9.6	65.9	229.7	10.6	12.6	4.6	8.2	4.3	10.3	15.4
1984	109.3	26.2	15.9	12.5	9.6	68.7	242.2	11.4	13.9	5.4	8.7	4.5	11.1	13.7
1985	115.6	26.9	16.5	13.1	10.4	76.5	259.0	12.5	15.4	6.1	9.3	4.8	11.7	16.7
1986	122.9	27.7	16.8	13.2	10.3	79.9	270.8	13.5	15.8	6.7	9.7	5.0	12.2	17.0
1987	130.0	29.9	17.2	13.6	11.1	83.3	285.1	13.8	15.8	8.1	10.9	5.1	12.6	17.1
1988	137.9	32.6	17.8	14.1	12.0	87.5	301.9	14.1	16.2	9.7	11.7	5.2	13.7	16.8
1989	145.1	35.2	18.6	14.8	12.9	89.0	315.6	15.7	16.4	12.3	12.7	5.7	14.6	11.5
1990	154.0	36.5	19.8	15.2	13.2	104.9	343.6	17.1	16.3	13.5	13.9	6.2	15.7	22.2
1991	160.9	38.1	20.4	16.3	15.2	112.6	363.5	17.5	15.8	12.2	15.9	6.4	16.5	28.3
1992	168.4	40.1	20.6	16.7	15.7	107.9	369.4	18.0	16.2	10.9	17.2	6.6	17.5	21.5
1993	178.0	40.9	21.2	17.2	18.4	104.2	379.6	18.6	17.2	10.1	17.9	7.2	18.2	15.2
1994	186.1	43.3	21.8	17.9	20.5	113.0	402.6	19.3	18.1	11.0	18.9	7.8	18.7	18.8
1995	196.6	47.8	22.3	18.6	22.8	107.6	415.7	20.0	18.7	11.7	19.6	8.0	19.4	10.2
1996	206.3	46.9	22.9	19.3	24.0	104.3	423.7	20.8	19.4	12.1	20.2	8.3	20.1	3.4

-- = Not available. <sup>1</sup> Includes employee wages or salaries and their health and welfare benefits. Also includes estimated earnings of proprietors, partners, and family workers not receiving stated remuneration. <sup>2</sup> Includes depreciation, rent, advertising and promotion, interest, taxes, licenses, insurance, professional services, local for-hire transportation, food-service in schools, colleges, hospitals, and other institutions, and miscellaneous items. Data for 1967-69 also include fuels and electricity. <sup>3</sup> The marketing bill is the difference between the farm value and consumer expenditures for these foods at both food stores and away-from-home eating places. Thus, it covers processing, wholesaling, transportation, retailing costs, and profits. Some historical data were revised.

Source: Calculated by ERS based on data from government and private sources.

**Table 17—Average hourly earnings of production and nonsupervisory employees of food industries**

Year	Manufacturing, food and kindred products	Wholesale trade, groceries, and related products	Food stores	Eating/drinking places
<i>Dollars per hour</i>				
1977	5.37	5.43	4.77	2.93
1978	5.80	5.92	5.23	3.22
1979	6.27	6.39	5.67	3.45
1980	6.85	6.96	6.24	3.69
1981	7.44	7.57	6.85	3.95
1982	7.92	8.25	7.22	4.09
1983	8.19	8.70	7.51	4.27
1984	8.39	9.03	7.64	4.26
1985	8.57	9.22	7.35	4.33
1986	8.75	9.30	7.06	4.35
1987	8.93	9.53	6.95	4.42
1988	9.12	9.79	7.01	4.57
1989	9.38	10.16	7.15	4.75
1990	9.62	10.45	7.31	4.97
1991	9.90	10.77	7.33	5.18
1992	10.20	11.09	7.56	5.29
1993	10.45	11.47	7.79	5.35
1994	10.66	11.77	7.94	5.47
1995	10.94	12.08	8.15	5.59
1996	11.22	12.36	8.38	5.79

Source: U.S. Department of Labor, *Employment and Earnings*, March 1997

The Employment Cost Index (ECI), a quarterly series published by the Bureau of Labor Statistics, can also be used to track labor cost changes. The ECI has several advantages over average hourly earnings. Changes in wages and salaries are based on wage rates, rather than on average earnings. This procedure eliminates the effects of shifts in the occupational employment mix. Changes in the proportion of full-time and part-time workers in food retailing probably have caused average earnings both to increase at a slower rate than the ECI series and to understate the change in the price of labor. The ECI includes employers' cost of employee benefits and lump-sum payments to workers.

The ECI for foodstores rose 3.6 percent in 1996, compared with 1.8 percent for all private industry (table 18). This rise in worker compensation costs was considerably larger than the 1995 gain of 1.1 percent. The 1996 increase included a wage and salary gain of 3.5 percent, also higher than 1995 (0.8-percent). Compensation costs rose at a slightly faster pace than wages and salaries in 1996 because benefit

cost increases were slightly greater than gains in wage rates. Although not reported separately, the increase in benefit costs was probably about 4.0 percent in 1996, or 1.1 times the rise in the wage rate of foodstore workers. Similarly, the ECI for private industry benefits rose just 1.8 percent in 1996, markedly smaller than the 5.9-percent average annual rise of the last decade.

### **Labor Productivity**

Productivity measures are calculated for the purpose of relating real physical output to real input. The Bureau of Labor Statistics measures overall business productivity in terms of output per hour of all employees. Labor productivity rose a moderate 0.7 percent during 1996 in the Nation's total business sector (excluding farming), reflecting a slightly larger increase in output than in hours worked. By contrast, labor productivity in foodstores (SIC 54) declined 1.7 percent in 1995 (the most recent year for which data are available), consistent with the general downward trend of the last 15 years. Increased use of labor inputs, as reflected in a 1.9-percent rise in foodstore hiring, and a small increase in output, as measured by real sales, likely combined to produce another productivity decline in 1996. Output per unit of labor among supermarkets exhibited a consistent downward trend between 1985 and 1995. However, it should be noted that the CPI for food-at-home items has been found to overstate inflation by 1 to 1.9 percent per year (see "Consumer Price Index Overstates Food-Price Inflation," by James MacDonald, *Food Review*, September-December 1995). Therefore, real supermarket output, calculated by using the CPI to deflate retail sales, would be understated, as would the resulting productivity figure for supermarkets. In short, productivity may be higher than the BLS figures would suggest.

Labor productivity in food manufacturing industries has improved moderately over the years. The average annual increase in output per unit of labor in seven food manufacturing industries for which data are available ranged from 1 to 3.5 percent over 1980-95 (table 19). These increases, in most instances, resulted from increased output and a small decline in hours worked. Labor productivity among food manufacturers has increased most in grain milling, fluid milk, and poultry processing. Productivity has grown

**Table 18--Employment Cost Index for workers in foodstores and all private industry**

Period	Employment Cost Index for--				
	Foodstores		Private industry		
	Total compensation costs	Wages and salaries	Total compensation costs	Wages and salaries	Benefits
<i>Annual percent change</i>					
1990	4.4	4.0	5.0	4.2	6.9
1991	4.5	4.2	4.4	3.8	6.1
1992	3.8	3.3	3.7	2.9	5.5
1993	2.9	2.4	3.6	2.9	5.4
1994	2.6	1.9	3.3	2.9	4.0
1995	1.1	0.8	2.7	2.8	2.4
1996	3.6	3.5	2.9	3.3	1.8
<i>Indexes, June 1989 = 100</i>					
1991:					
March	107.5	106.9	108.5	107.3	111.6
June	109.3	108.7	109.8	108.4	113.5
September	110.3	109.4	111.0	109.3	115.2
December	111.7	110.4	111.7	110.0	116.2
Average	109.7	108.9	110.3	108.8	114.1
1992:					
March	112.6	110.9	113.1	110.9	118.6
June	113.6	112.3	113.9	111.6	119.7
September	114.2	112.9	114.8	112.2	121.2
December	115.1	113.7	115.6	112.9	122.2
Average	113.9	112.5	114.4	111.9	120.4
1993:					
March	115.9	114.6	117.1	113.9	125.2
June	117.2	115.4	118.0	114.6	126.7
September	117.1	114.9	119.1	115.7	127.7
December	118.3	115.9	119.8	116.4	128.3
Average	117.1	115.2	118.5	115.2	127.0
1994:					
March	119.6	117.0	121.0	117.2	130.7
June	120.6	117.8	122.0	118.1	131.7
September	120.3	117.4	123.0	119.1	132.8
December	120.0	117.3	123.5	119.7	133.0
Average	120.1	117.4	122.4	118.5	132.1
1995:					
March	120.8	117.8	124.5	120.6	134.5
June	120.7	117.6	125.4	121.5	135.1
September	121.8	118.6	126.2	122.4	135.6
December	122.4	119.1	126.7	123.1	135.9
Average	121.4	118.3	125.7	121.9	135.3
1996:					
March	123.6	120.5	127.9	124.4	136.6
June	124.4	121.2	129.0	125.6	137.4
September	127.0	123.1	129.8	126.5	138.1
December	128.4	124.7	130.6	127.3	138.6
Average	125.9	122.4	129.3	126.0	137.7

Source: U.S. Department of Labor, Bureau of Labor Statistics.

**Table 19—Indexes of output per employee hour in selected food manufacturing industries, retail food stores, and eating and drinking places**

Year	Food manufacturing							Retail food stores	Eating and drinking places
	Meat packing plants	Poultry dressing and processing	Fluid milk	Preserved fruits and vegetables	Grain mill products	Bakery products	Sugar		
	1987 = 100								
1980	78.4	81.6	74.8	82.9	70.9	82.4	88.6	107.6	106.8
1981	84.2	89.5	78.2	81.5	75.0	84.4	86.9	104.6	104.1
1982	86.6	97.1	81.1	88.5	81.5	90.3	77.1	103.3	103.5
1983	90.8	100.9	85.5	91.9	83.5	93.3	84.8	103.1	102.6
1984	93.6	99.1	88.9	92.6	87.8	93.4	85.7	103.7	98.9
1985	98.3	100.5	92.0	94.3	92.5	95.6	87.6	104.1	96.2
1986	98.7	95.6	96.0	98.9	95.5	100.1	90.7	103.1	99.3
1987	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1988	100.9	96.2	102.3	97.4	100.0	93.4	99.1	99.0	102.8
1989	97.9	105.2	103.7	98.3	101.9	91.0	98.6	96.0	102.2
1990	96.8	108.6	103.3	96.2	106.0	93.2	104.2	96.0	104.0
1991	100.2	115.4	104.3	99.9	106.7	89.2	107.5	94.9	103.1
1992	104.5	119.6	104.0	101.3	104.4	89.4	110.9	94.5	102.4
1993	105.1	119.8	107.1	107.2	109.4	90.3	114.8	93.3	103.1
1994	101.0	119.4	112.9	108.0	110.5	91.1	117.4	93.0	101.4
1995 <sup>1</sup>	101.7	122.5	115.8	111.5	116.7	92.2	125.2	91.4	102.2
	Percent								
Average annual change:									
1980-95	1.7	2.7	3.0	2.0	3.4	0.8	2.3	-1.1	-0.3

-- = Not available. <sup>1</sup> Preliminary. Some historical data were revised.  
Source: U.S. Department of Labor, Bureau of Labor Statistics

erratically for most industries, partly because of fluctuating output and business conditions.

Productivity among eating and drinking places rose slightly less than 1 percent in 1995, consistent with generally higher productivity levels since the mid-1980's. Productivity rose because hours worked rose about 1.4 percent, while output was up 2.3 percent.

### Packaging Costs

Packaging is the second largest component of the marketing bill, accounting for 8.5 percent of the food dollar. Costs of these materials, down 2 percent in 1996, restrained aggregate food marketing cost growth. Packaging costs dropped because of paperboard price reductions. The aggregate price of packaging materials dropped 3.8 percent in 1996 following 1995's sharp 7.9-percent gain.

Paperboard boxes and containers are the largest packaging cost. The food industry spent approximately

\$18.8 billion, or about 40 percent of total packaging expenses, on paper and paperboard products in 1996. Fiber (cardboard) boxes, the primary container used to ship nearly all processed foods, represented about 33 percent of total packaging expenses. Sanitary food containers, including those for such products as fluid milk, margarine and butter, ice cream, and frozen food, also totaled almost 33 percent of paperboard packaging expenses. The third largest paperboard item was folding boxes used for such dry foods as cereal and perishable bakery products. Prices of paperboard shipping boxes and other paper products fell 7.2 percent in 1996, while the price of paper bags and sacks dropped 4.4 percent. These decreases followed record 1995 increases. In 1995, the paper industry experienced the most rapid price increase in its history, stemming from an inability to add capacity fast enough to meet demand. In 1996, paperboard prices dropped after customers such as the food industry restocked their inventories.

**Table 20—Annual average trucking costs for fresh fruits and vegetables**

Food group	1991	1992	1993	1994	1995	1996
<i>Cents per mile</i>						
<b>Fixed costs:</b>						
Interest	5.6	3.7	3.0	2.6	2.9	2.8
Depreciation	1.6	1.6	1.6	1.6	1.6	1.6
Overhead	12.9	13.5	15.2	15.5	16.0	16.4
Insurance	9.0	8.8	9.3	9.6	10.0	10.5
Licenses	6.2	8.6	9.0	9.3	9.5	9.7
<b>Variable costs:</b>						
Vehicle depreciation	9.7	8.7	8.7	8.7	8.7	8.7
Wages	34.8	34.8	36.0	36.5	37.5	38.3
Fuel costs	21.8	20.5	19.9	19.6	19.1	21.3
Maintenance	14.7	14.4	15.1	15.1	15.4	15.6
Tires	2.9	2.8	2.8	2.8	2.7	2.6
Miscellaneous	7.4	6.7	6.7	6.7	6.7	6.9
<b>Total costs</b>	<b>126.6</b>	<b>124.1</b>	<b>127.3</b>	<b>127.8</b>	<b>130.2</b>	<b>134.4</b>

Source: Agricultural Marketing Service, USDA.

Metal containers are the second largest packaging expense, making up about 20 percent of total food packaging costs. Prices of metal cans fell 10.2 percent in the face of excess beverage can capacity due to increased demand for competing plastic containers. Cans have become less important for food packaging because of the increased popularity of glass and plastic bottles, the year-round availability of fresh fruit and vegetables, and the increased use of microwavable dishes for frozen foods. The price of glass containers, which are largely used to enhance product image, was 0.6 percent lower in 1996.

Costs of plastic containers and wrapping materials account for nearly 20 percent of food packaging costs. Plastic is an important source of trays for meat and produce; bottles for milk and fruit juices; jars and tubs for cottage cheese and other dairy products; and flexible wrapping materials, such as polyethylene film for protective covering of baked goods, meat, and produce. The price of plastic dropped 1.2 percent in 1996 as producers were unable to raise prices in the face of price reductions for competing packaging products. Demand for packaging products prevented sales volume from falling as fast as packaging prices.

### Transportation Rates and Costs

The transportation cost index, representing railroad freight rates, held steady in 1996. Most foods shipped by railroad are canned and bottled products. The new BLS index of agricultural trucking rates showed an increase of 2.4 percent. Some meat and fresh fruits and vegetables are shipped by rail in truck trailers on flatcars (TOFC), but information on charges for these products is not available. TOFC shipments of fresh fruit and vegetables decreased 15.4 percent in 1996, but still accounted for nearly 3 percent of all produce shipped. The number of produce railcars was also smaller in 1996, but the market share accounted for by this transportation mode—4.2 percent—was about the same as in 1995.

Approximately 93 percent of fresh produce was transported by truck in 1996. Operating costs of trucks hauling produce, as reported by USDA's Agricultural Marketing Service, increased 3.2 percent in 1996 (table 20). Higher fuel costs were the primary factor driving trucking costs. Gasoline and petroleum costs surged in the face of unusually cold winter weather and low fuel supplies. Truckers experienced a fuel cost increase of 11.4 percent, while wages rose 2.1 percent—half the rate recorded in 1995. Fuel and labor accounted for 44 percent of total operating costs. Other expense items (depreciation and maintenance, overhead, licenses, and insur-

ance) rose an average of 2.0 percent—considerably less than 1995's 3.6-percent jump. These trucking expenses were restrained by small increases in overhead expenses, and largely unchanged maintenance costs. Intercity truck and rail transportation for farm foods amounted to \$22.9 billion in 1996, or about 4 percent of retail food expenditures.

## **Energy Costs**

The energy bill for food marketing costs in 1996 came to about \$19.3 billion, making up about 3.5 percent of retail food expenditures. Energy costs rose 3.8 percent, double the rate of increase for the marketing bill. The energy bill included only the costs of electricity, natural gas, and other fuels used in food processing, wholesaling, retailing, and food-service establishments. Transportation fuel costs, except for those incurred for food wholesaling, were excluded.

Energy costs rose despite a 2-percent drop in the price of electricity. Higher energy costs were largely the result of a 4.1-percent rise in the price of natural gas and increased volume of marketing services. In contrast to transportation, fuel cost increases did not exert a large impact on direct energy costs because electricity supplies most of the food industry's energy requirements. Natural gas and electricity prices exert the greatest impact on the energy costs of processing and retailing food, with oil prices having little effect.

Public eating places and other foodservice facilities incur nearly 40 percent of the fuel and electricity costs of food marketing. Their energy expenses have risen because of large growth in the away-from-home food market. Also, away-from-home foodservice has the highest energy costs per dollar of sales, about 3.1 percent. About 85 percent of this cost comes from the use of electric power. Energy costs of food retailers are the second largest, at about 26 percent of the energy bill, and consist mainly of electricity. The food processing sector is responsible for another 20 percent of the total energy bill. Electric power accounts for 56 percent of food manufacturing energy costs, with natural gas making up the remaining 44 percent.

## **Other Costs Added Up**

The major costs discussed above total about 70 percent of the 1996 food marketing bill. The rest of the bill included a variety of miscellaneous costs (table 16) (about 24 percent of the total) and profits (about 6 percent). Miscellaneous costs totaled \$104 billion. The largest of these costs (advertising, business taxes, net interest, depreciation, rent, and repairs) are estimated using data from trade publications, the Internal Revenue Service, and the U.S. Bureau of the Census.

### **Advertising**

Advertising expenses have increased 54 percent over the last decade, and account for about 4 percent of food expenditures. The largest increases occurred in food wholesaling and foodservice, with each sector spending 66 percent and 72 percent more, respectively. Meanwhile, advertising expenditures by food processors rose 57 percent, and retailers increased their advertising expenditures by 22 percent. Food manufacturing accounts for 55 percent of total food industry advertising expenditures, with foodservice contributing another 25 percent, and food retailing 14 percent. A mix of print and broadcast media promote food industry products.

### **Business Taxes and Interest**

Business taxes are the second largest of the miscellaneous costs, comprising 3.5 percent of consumer food expenditures. Business taxes include property, State, unemployment insurance, and Social Security taxes, but exclude Federal income taxes. Business taxes rose 3.6 percent in 1996.

Net interest, while accounting for only 2 percent of total consumer expenditures, had the second fastest rate of increase, jumping 80 percent over the last decade. Most of the increase occurred in the food-store sector, and reflected higher debt acquired due to merger and acquisition activity, particularly leveraged buyouts. The 3.4-percent increase in 1996 interest expense occurred despite interest rate declines, because long- and short-term loans booked during years of rising interest rates are included in the estimates.

### **Depreciation, Rent, and Repairs**

Depreciation, rent, and repairs together totaled \$47.9 billion in 1996, accounting for 8.5 percent of the consumer food dollar. The foodservice sector incurred the highest percentage of these costs, at 41 percent of the total. Foodstores comprised 27 percent, while processing and wholesaling firms together accounted for the remaining 32 percent. Foodservice establishments incurred high property rental expenses, and thus had the highest total of any sector. Indeed, net rent expenses grew 108 percent over the last decade, the fastest growth rate of the miscellaneous costs. Rent grew at especially fast rates for processing and foodservice firms.

Sufficient data are not available for estimating many individual smaller costs, such as insurance, for-hire local truck transportation, professional services, and foodservice in schools and institutions. Together, these costs account for about 0.5 percent of the food dollar.

### **Corporate Profits**

Food industry firms earned approximately \$24 billion in pre-tax profits from marketing U.S. farm foods in 1996, a 5.3-percent increase from 1995. This rise was considerably smaller than the 9.1-percent growth recorded in 1995. About 4.5 cents of every food dollar went to pre-tax corporate profits in 1994. Retail foodstores accounted for most of the profit gain in 1996 by attracting customers to cheaper generic brands and nonfood services such as in-store pharmacies, greeting cards, health and beauty care, and video rentals. These items are especially appealing to customers seeking one-stop shopping convenience. *Supermarket Business* reports that these products account for as much as 20 percent of total store profits, while comprising only 10 percent of store volume. The stronger economy, technological improvements, and increased sales of store-label products also stimulated higher 1996 retail profits. Retailers continued to make greater use of technology (particularly checkout scanning, satellite communications, and more sophisticated merchandising and labor scheduling systems) to increase efficiency and control labor costs, their largest operating expense. However, profits were mitigated by a variety of conditions in the other food sectors. For example, food

processors were unable to raise prices due to the moderate inflationary environment, and were further squeezed by higher raw commodity prices. Food manufacturers have also been able to hold down costs with gains in labor productivity. Profits rose for many companies in 1996. However, manufacturers' profits continue to be tempered by increased consumer purchases of less costly store-label foods, which cut into sales and profits of manufacturers' brand-name foods.

Meanwhile, competition among restaurants, particularly fast-food outlets, has restrained profit levels among eating and drinking places. Foodservice continues to capture an expanding share of total food expenditures. However, the demand for convenience is also being seen at grocery stores, where prepared foods are also generating profits and are accounting for higher percentages of supermarket sales. The distinction between the at-home and away-from-home markets has become increasingly blurred as these two segments compete for the consumer's food dollar.

Wholesalers' profits rose just 5 percent in 1996. This moderate rise reflected competition between wholesalers' biggest clients, independent grocery stores, and supercenters that offer both food and an extensive line of other retail merchandise.

The profit estimate was developed by a two-step procedure. First, profit ratios per dollar of sales were derived from IRS corporate income tax returns. This estimate was then multiplied by the annual sales of food retailers, wholesalers, manufacturers, and public eating places.

Two financial ratios provide further insight into the 1996 food industry profit picture: profit margin and return on stockholder equity. The profit margin is net income as a percentage of sales. It measures the portion of the sales dollar left after paying all expenses, including the cost of food products. The profit margin helps explain the importance of profits compared with costs that, together, make up the consumer food dollar. Return on stockholder equity, which reflects the earning power of the owner's investment, shows food industry profitability compared with that of other industries.

The after-tax profit margin of food and tobacco manufacturers averaged 5.6 percent of sales in 1996,



**Table 21—Profit margins of food manufacturers and retail food chains, industry averages**

Year and quarter	Food manufacturers <sup>1</sup>			Retail food chains <sup>2</sup>		
	After-tax profits as a percentage of--					
	Sales	Stockholder equity	Assets	Sales	Stockholder equity	Assets
	Percent					
1980	3.4	14.7	7.1	0.9	13.7	4.5
1981	3.1	13.6	6.5	1.0	13.9	4.7
1982	3.1	13.0	6.3	.9	12.7	4.4
1983	3.3	13.3	6.0	1.1	13.6	4.9
1984	3.3	13.3	6.0	1.4	17.3	6.0
1985	4.1	15.3	6.6	1.3	14.5	5.3
1986	4.2	16.2	6.3	1.1	11.9	4.4
1987	4.6	17.5	6.8	.9	12.8	3.6
1988	5.5	20.9	8.1	.9	13.6	3.2
1989	4.2	17.1	5.5	.8	20.7	2.9
1990	4.0	16.1	5.3	1.1	22.8	3.8
1991	4.8	17.5	6.0	1.1	18.8	3.8
1992	4.3	15.0	5.3	1.0	14.6	3.2
1993	3.7	13.5	4.7	.8	11.7	2.5
1994	5.0	17.8	6.1	1.4	18.4	4.4
1995	5.5	18.5	6.6	1.5	21.3	4.7
1996	5.6	19.1	6.7	1.6	19.4	4.8
1991:						
I	5.1	18.5	6.1	1.1	20.0	3.6
II	5.0	18.7	6.4	1.4	24.0	4.7
III	5.2	19.1	6.7	1.0	16.3	3.5
IV	3.9	13.8	5.0	1.0	15.5	3.4
1992:						
I	3.2	10.9	3.9	1.1	16.0	3.5
II	5.8	20.4	7.3	.8	11.6	2.6
III	4.4	15.6	5.4	.7	10.4	2.3
IV	3.7	13.2	4.6	1.4	20.0	4.4
1993:						
I	2.8	10.0	3.5	-.5	-6.9	-1.5
II	4.6	16.5	5.7	1.3	19.4	4.2
III	4.2	15.2	5.3	1.0	14.1	3.1
IV	3.4	12.3	4.2	1.3	19.1	4.3
1994:						
I	5.2	18.4	6.3	1.3	17.2	4.0
II	4.3	15.2	5.3	1.6	21.3	5.1
III	5.3	18.8	6.6	1.4	18.5	4.5
IV	5.1	18.5	6.3	1.3	16.7	4.1
1995:						
I	5.4	18.2	6.4	1.3	20.3	4.0
II	6.0	19.8	7.2	1.5	22.7	5.0
III	5.9	19.4	6.9	1.4	19.1	4.4
IV	4.8	16.5	5.8	1.7	23.0	5.5
1996:						
I	5.6	18.4	6.5	1.6	20.0	5.0
II	5.2	17.6	6.2	1.6	20.5	5.0
III	5.7	20.1	7.1	1.5	18.5	4.4
IV	5.9	20.5	7.2	1.6	18.8	4.7

<sup>1</sup> Data represent aggregate estimates for corporations, based on a sample of company reports. Beginning in 1985, data are not comparable with earlier years because the tobacco industry was combined with food manufacturers.

<sup>2</sup> Data are based on reports from all food retailing corporations having at least \$1 billion in annual sales, at least 70 percent of which are derived from supermarket operations. Beginning in 1990, data reflect a larger sample of firms.

Source: U.S. Department of Commerce.

about the same as 1995, based on data from the U.S. Bureau of the Census. Returns on stockholders' equity increased to 19.1 percent in 1996 (table 21). Returns on equity for the food and tobacco industry were thus higher than the 18.5-percent average for all manufacturers of nondurable products. Profit margins of retail food chains were much narrower than those of food manufacturers, and averaged 1.6 percent of sales in 1996, compared with 1.5 percent a year earlier. However, returns on equity were slightly higher for retail food chains (19.4 percent) than manufacturers in 1996, despite a decrease of 1.9 percent from 1995.

### **Food Spending in Relation to Income**

Food spending has increased considerably over the years, but the increase has not matched the gain in disposable income. As a result, the percentage of income spent for food has declined (table 22). In 1929, the first year data of this type were recorded, 23.9 percent of disposable income was spent for food. This percentage has since tapered off fractionally almost every year. By 1970, the percentage had dropped to 13.8 percent. During the 1970's, the percentage held fairly constant because of high food-price inflation. By 1980, food spending was still 13.4 percent of disposable income, but has since declined steadily to reach a low of 10.9 percent in 1996.

The decline in the percentage of income spent for food is the result of the inelastic nature of the aggregate demand for food: as income rises, the proportion of income spent for food declines, and the proportion spent for nonfood items increases. A decline in the percentage of income spent for food generally reflects a highly developed economy in which there is money to spend for personal services and other discretionary items. Some of these additional services ordinarily are purchased along with food, which largely explains why the percentage of income spent for food away from home has not fallen as has the percentage of income spent for food at home.

ERS developed the estimates of food expenditures in table 22, which differ from the U.S. Department of Commerce estimates of personal consumption expen-

ditures (PCE). The trend in food expenditures is similar, but the ERS series shows a lower level of spending for food than does the PCE series, particularly for food purchased at grocery stores and other retail outlets for consumption at home. The ERS estimates of at-home expenditures are lower partly because they exclude pet food, ice, and prepared feeds, which are included in PCE estimates. ERS estimates also deduct more from grocery store sales for nonfoods, such as drugs and household supplies, in estimating food purchases for at-home consumption.

### **Food Spending as a Proportion of Income**

An annual consumer expenditure survey by the U.S. Department of Labor reveals comprehensive information about how much average households spend for food and other products and services. The findings for 1995 show that annual food expenditures averaged \$4,691 (table 23).

Spending varies by households of differing size, income, and other characteristics. For example, married couples with children, where the oldest child is 6-17 years old, spent an average of \$6,592 for food in 1995, or about \$127 per week. Among major food categories, spending was highest for dairy products (\$454), bakery products (\$415), fresh fruits and vegetables (\$373), and beef (\$337).

The proportion of income spent for food varies widely by household income. For example, households with incomes of \$5,000-\$9,999, before taxes, spent about 32 percent of their after-tax income for food. Households with before-tax income of \$15,000-\$19,999 spent 23 percent of their after-tax income for food. Households with incomes of \$30,000-\$39,999 spent 15 percent of after-tax income for food. The average for all households was 13.8 percent. This figure, based on the consumer survey data, is higher than the estimates using total food expenditures and disposable personal income. Several factors account for this difference. First, households may not have fully accounted for income from all sources. Moreover, household income does not include pension and welfare funds, such as insurance premiums paid by employers. Finally, the reported income is

**Table 22—Food expenditures by families and individuals as a share of disposable personal income**

Year	Disposable personal income	Expenditures for food			Proportion of income spent for food		
		At home <sup>1</sup>	Away from home <sup>2</sup>	Total <sup>3</sup>	At home	Away from home	Total <sup>3</sup>
		-----Billion dollars-----			-----Percent-----		
1929	81.8	16.9	2.6	19.5	20.7	3.2	23.9
1939	69.7	13.0	2.3	15.2	18.6	3.3	21.9
1949	188.1	33.8	7.8	41.5	18.0	4.1	22.1
1959	349.0	49.3	12.1	61.4	14.1	3.5	17.6
1961	378.8	51.1	13.1	64.2	13.5	3.5	16.9
1962	401.3	52.0	13.9	65.9	13.0	3.5	16.4
1963	421.1	52.4	14.5	66.9	12.4	3.5	15.9
1964	457.6	54.5	15.7	70.2	11.9	3.4	15.3
1965	493.9	57.4	16.9	74.3	11.6	3.4	15.0
1966	533.7	59.9	18.6	78.5	11.2	3.5	14.7
1967	571.9	60.3	19.8	80.0	10.5	3.5	14.0
1968	621.4	63.5	21.7	85.2	10.2	3.5	13.7
1969	668.4	68.0	23.4	91.3	10.2	3.5	13.7
1970	727.1	74.2	26.4	100.6	10.2	3.6	13.8
1971	790.2	78.1	28.1	106.2	9.9	3.6	13.4
1972	855.3	84.4	31.3	115.8	9.9	3.7	13.5
1973	965.0	93.1	34.9	128.0	9.7	3.6	13.3
1974	1,054.2	105.4	38.5	143.9	10.0	3.7	13.7
1975	1,159.2	115.2	45.9	161.1	9.9	4.0	13.9
1976	1,273.0	123.1	52.6	175.7	9.7	4.1	13.8
1977	1,401.4	131.8	58.5	190.3	9.4	4.2	13.6
1978	1,580.1	145.3	67.5	212.8	9.2	4.3	13.5
1979	1,769.5	162.2	76.9	239.1	9.2	4.3	13.5
1980	1,973.3	179.1	85.2	264.4	9.1	4.3	13.4
1981	2,200.2	191.0	95.8	286.8	8.7	4.4	13.0
1982	2,347.3	198.4	104.5	302.9	8.5	4.5	12.9
1983	2,522.4	209.0	113.7	322.7	8.3	4.5	12.8
1984	2,810.0	220.9	121.9	342.8	7.9	4.3	12.2
1985	3,002.2	230.7	128.6	359.3	7.7	4.3	12.0
1986	3,187.6	239.3	137.9	377.2	7.5	4.3	11.8
1987	3,363.1	249.0	146.3	395.3	7.4	4.3	11.8
1988	3,640.8	261.9	157.6	419.5	7.2	4.3	11.5
1989	3,894.5	280.9	165.5	446.4	7.2	4.3	11.5
1990	4,166.8	306.0	177.6	483.6	7.3	4.3	11.6
1991	4,343.7	319.5	183.1	502.6	7.4	4.2	11.6
1992	4,613.7	321.6	192.1	513.7	7.0	4.2	11.1
1993	4,789.3	327.6	206.6	534.2	6.8	4.3	11.2
1994	5,018.8	343.9	218.7	562.5	6.9	4.4	11.2
1995	5,320.8	357.0	229.9	586.9	6.7	4.3	11.0
1996	5,588.5	370.5	236.3	606.8	6.6	4.2	10.9

<sup>1</sup> Food purchased from grocery stores and other retail outlets, including purchases with food stamps and food produced and consumed on farms, because the value of these foods is included in personal income. Excludes Government-donated foods.

<sup>2</sup> Purchases of meals and snacks by families and individuals and food furnished to employees, because it is included in personal income. Excludes food paid for by government and business, such as food donated to schools, meals in prisons and other institutions, and expense-account meals.

<sup>3</sup> May not add due to rounding.

Source: Calculated by ERS based on data from government and private sources.

capped to protect the privacy of some survey households. All of these factors tend to cause an upward bias in the estimated percentage of income spent for food.

**Table 23--Average household food spending in 1995**

Item	All households	Household income before taxes		
		\$5,000- \$9,999	\$15,000- \$19,999	\$30,000- \$39,999
Number				
Average persons per household	2.5	1.8	2.2	2.7
Dollars				
Household income after taxes	33,893	7,414	16,718	32,047
Annual food expenditures	4,691	2,389	3,880	4,710
Food at home	2,886	1,831	2,732	2,907
Cereal products	169	113	170	174
Bakery products	285	169	250	305
Beef	232	155	247	268
Pork	158	126	193	154
Other meat	105	64	113	104
Poultry	136	85	136	140
Fish and seafood	95	56	101	70
Eggs	32	26	34	33
Fresh milk and cream	129	93	128	135
Other dairy products	182	93	158	185
Fresh fruit	148	107	137	136
Fresh vegetables	141	92	134	145
Processed fruit	97	66	92	100
Processed vegetables	81	55	79	81
Sugar and other sweets	119	73	99	112
Fats and oils	84	59	84	86
Miscellaneous food	394	226	324	388
Nonalcoholic beverages	250	155	238	242
Food away from home	1,805	558	1,148	1,803
Percent				
Share of income spent for food	13.8	32.2	23.2	14.7

Source: U.S. Department of Labor, Bureau of Labor Statistics, Office of Prices, *Consumer Expenditures in 1995*, December 1996.